COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF AGRICULTURE

BULLETIN No. 259

TABULATED ANALYSES OF

Commercial Fertilizers

FROM SAMPLES SELECTED IN ACCORDANCE
WITH ACT OF MAY 1, 1909

BY THE

PENNSYLVANIA DEPARTMENT OF AGRICULTURE

From August 1 to December 31, 1914

HARRISBURG, PA.:
WM STANLEY RAY, STATE PRINTER
1915

OATH OF FERTILIZER SAMPLING AGENT.

Commonwealth of Pennsylvania, ss:

Personally appeared before me, ... of .....County of ..... and State of Pennsylvania, who being duly sworn, according to law, doth depose and say: That he has been duly appointed an agent of the Department of Agriculture of Pennsylvania to collect samples of Commercial Fertilizers for analysis, that he is not in any way interested in the manufacture or sale of any fertilizer, and that he will perform the duties of the office with fidelity in accordance with the requirements of law to the best of his ability, and as set forth in the instructions issued by the Secretary of the Department of Agriculture, governing the sampling of fertilizers in this State.

Sworn and subscribed before me, this ..... day of ..... A. D. ....

(Signed), ...

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The Act of 1st May 1909, Commonly Referred to as "The New Fertilizer Law" is as Follows:

No. 205.

AN ACT

To regulate the manufacture and sale of commercial fertilizers; prescribing penalties for its violation, and repealing an act, entitled "An act to regulate the manufacture and sale of commercial fertilizers; providing for its enforcement, and prescribing penalties for its violation," approved the twenty-fifth day of March, Anno Domini one thousand nine hundred and one.

Section 1. Be it enacted, &c., That every package of commercial fertilizer sold, offered, or exposed for sale, for manurial purposes within this Commonwealth, except the dung of domestic animals, lime, marl, and wood-ashes, shall have plainly stamped thereon the name and address of the manufacturer or importer and his place of business, the net weight of the contents of the package, the brand or trade-name of the fertilizer the package contains, and an analysis stating the percentage such fertilizer contains of nitrogen in an available form, of potash soluble in water, of soluble and reverted phosphoric acid, and of insoluble phosphoric acid.

Section 2. Every manufacturer or importer of commercial fertilizers, as specified in section one of this act, shall, on or before the first day of January of each year, or before offering them for sale in this Commonwealth, file annually with the Secretary of Agriculture a statement of the names and number of brands of such commercial fertilizers, having distinct trade-names, that he shall offer for sale during the next ensuing year, and a copy of the analysis of each one of such brands of commercial fertilizers, as required by section one of this act.

Section 3. In addition to the statement required by section two of this act, every manufacturer or importer of commercial fertilizers shall, on or before the first day of January of each year, or before offering them for sale in this Commonwealth, file annually with the Secretary of Agriculture an affidavit showing the amount of each brand of fertilizer, having a distinct trade-name, sold within the Commonwealth during the last preceding year; and if the said amount shall be one hundred tons or less, he or they shall pay or cause to be paid to the Secretary of Agriculture the

sum of fifteen dollars for each and every brand of such commercial fertilizer, having a distinct trade name sold within the State during the last preceding year: and if the said amount shall exceed one hundred tons, and be less than five hundred tons, he or they shall pay the sum of twenty dollars, as aforesaid; and if the said amount shall be five hundred tons or more, he or they shall pay the sum of thirty dollars, as aforesaid. If such manufacturer or manufacturers, importer or importers, shall not have made any sales within the Commonwealth during the preceding year, he or they shall pay the sum of fifteen dollars upon each such brand, as aforesaid: Provided, That all monies so received shall be immediately paid by the Secretary of Agriculture into the State Treasury, for the use of the Commonwealth.

Section 4. No person shall sell, offer, or expose for sale, in this State, any pulverized leather, hair, ground hoofs, horns, or wool waste, raw, steamed, roasted, or in any form, as a fertilizer, or as an ingredient of a fertilizer or manure, without an explicit statement of the fact; said statement to be conspicuously affixed to every package of such fertilizer or manure, and to accompany and go with every lot, parcel, or package of the same.

Section 5. Any person or persons selling, offering, or exposing for sale, any commercial fertilizer or any brand of the same, having a distinct trade-name, without the analysis required by section one of this act, or with an analysis stating that it contains a larger percentage of any one or more of the above-named constituents than is contained therein, or for the sale of which all the provisions of sections two and three have not been complied with, or any person violating any of the provisions of section four of this act, shall be guilty of a misdemeanor, and, on conviction, shall be sentenced to pay a fine of not less than twenty-five nor more than one hundred dollars for the first offense, and not less than two hundred dollars for each subsequent offense. It shall be the duty of the Secretary of Agriculture to enforce the provisions of this act, and all penalties, costs, and fines recovered shall be paid to him or his duly authorized agent, and by him shall be immediately paid into the State Treasury, for the use of the Commonwealth.

Section 6. The Secretary of Agriculture is hereby empowered to collect samples of commercial fertilizers, either in person or by his duly qualified agent or representative, and to have them analyzed, and to publish the results for the information of the public; and for this purpose the said Secretary of Agriculture, such assistants, agents, experts, chemists, detectives, and counsel as he shall duly authorize, shall have full access, ingress, and egress to and from all places of

business, factories, barns, buildings, carriages, cars, and vessels, used in the manufacture and transportation, or sale, of any commercial fertilizer. They shall also have power to open any package or vessel containing or supposed to contain any commercial fertilizer, and take therefrom samples for analysis, upon tendering the value of said samples.

Section 7. The term "commercial fertilizers," as used in this act, shall be construed to mean any and every substance imported, manufactured, prepared, or sold for fertilizing or manuring purposes, except the dung of domestic animals, marl, lime, and wood-ashes, and not exempt by the provisions of section one of this act.

Section 8. This act shall go into effect on and after the thirty-first day of July, one thousand nine hundred and nine; and the act, entitled "An act to regulate the manufacture and sale of commercial fertilizers; providing for its enforcement, and prescribing penalties for its violation," approved the twenty-fifth day of March, Anno Domini one thousand nine hundred and one, is hereby repealed.

Approved—The 1st day of May, A. D. 1909.

EDWIN S. STUART.

No. 95.

AN ACT

Making it unlawful for any person, firm, or corporation, engaged in the manufacture or sale of commercial fertilizers, to use the word "bone" in connection with, or as part of the name of, any fertilizer, or any brand of the same, unless the phosphoric acid contained in such fertilizer shall be the product of pure animal bone; and providing a penalty for violation of the same.

Section 1. Be it enacted, &c., That it shall be unlawful for any person, firm or corporation, engaged in the manufacture or sale of commercial fertilizers, to use the word "bone" in connection with, or as part of the name of, any fertilizer, or any brand of the same, unless the phosphoric acid contained in such fertilizer shall be the product of pure animal bone.

Section 2. Any person or persons violating the provisions of this act shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall pay a fine of fifty dollars for the first offense, and a fine of not less than one hundred dollars, nor more than two hundred dollars, for every subsequent offense; such fine or fines to be paid into the State Treasury, for the use of the Commonwealth. The Secretary of Agriculture shall, together with his deputies, agents, and assistants, be charged with the enforcement of this act.

Section 3. All magistrates, aldermen, and justices of the peace throughout this Commonwealth shall have jurisdiction to hear and determine actions arising from violations of the provisions of this act, and shall have authority to hold for court, or to impose the penalty hereby prescribed, subject to appeal, as the law shall direct.

Section 4. This act shall go into effect on the first day of January, Anno Domini nineteen hundred and ten.

Approved—The 23d day of April, A. D. 1909.

EDWIN S. STUART.

LETTER OF TRANSMITTAL.

State College, Pa., December 29, 1914.

Hon. N. B. Critchfield, *Secretary of Agriculture, Harrisburg, Pa.:*

Dear Sir: I have the honor to transmit hereith my report upon the analyses of the samples of commercial fertilizers received from official sampling agents during the fall season of 1914.

Very respectfully,

WM. FREAR,

FERTILIZERS ANALYSES AUGUST 1 TO DECEMBER 31, 1914.

Since August 1, 1914, there have been received from authorized sampling agents eleven hundred and eighty-four fertilizer samples, of which four hundred and fifty were subjected to analysis. Preference was given to those which have not been recently analyzed. In cases where two or more samples representing the same brand were received, equal portions from several samples were united, and the composite sample was subjected to analysis.

The samples analyzed group themselves as follows: 281 complete fertilizers, furnishing phosphoric acid, potash and nitrogen; 2 dissolved bones, furnishing phosphoric acid and nitrogen; 99 rock-and potash fertilizers, furnishing phosphoric acid and potash; 38 acidulated rock phosphates, furnishing phosphoric acid only; 23 ground bones, furnishing phosphoric acid and nitrogen, and 7 miscellaneous samples, which group includes substances not properly classified under the foregoing heads.

The determinations to which a complete fertilizer is subjected are as follows: (1) Moisture, useful for the comparison of analyses, for indication of dry condition and fitness for drilling, and also of the conditions under which the fertilizer was kept in the warehouse. (2) Phosphoric acid—total and insoluble; the latter is, that portion not soluble in water nor in warm ammonium citrate solution (a solution supposed to represent the action of plant roots upon the fertilizer), which is assumed to have little immediate food value. By difference, it is easy to compute the so-called "available" phosphoric acid. (3) Potash soluble in water—most of that present in green sand marl and crushed minerals, and even some of that present in vegetable materials such as cotton-seed meal, not being included because insoluble in water even after long boiling. (4) Nitrogen—This element is determined in such manner as to ascertain its *total* quantity and also, beginning with the present season, the quality of the organic nitrogenous material present in the finished fertilizer. The fertilizer is washed thoroughly with water, which removes the nitrates, ammonium salts and almost all of the cyanamid nitrogen, and the soluble organic nitrogenous materials. These are not separately determined, but are grouped under the name *"water-soluble nitrogen."* The quantity of *water-insoluble nitrogen* is directly determined, and by difference between its amount and the total nitrogen, the water-soluble nitrogen is calculated. Another portion of water-insoluble material* is treated with alkaline potassium permanganate, which

*This determination has been omitted in all cases where the insoluble nitrogen is only .2 per cent. or less.

attacks the nitrogenous organic substances present, and converts the more active portion into ammonia, which is distilled off, determined, and its nitrogen calculated as *"active insoluble nitrogen."* The *"inactive insoluble nitrogen"* is then computed by subtracting the active insoluble from the total insoluble nitrogen. The term "available nitrogen" as used in this report, is the sum of the water-soluble and the active insoluble nitrogen. It is equivalent to the total nitrogen less the inactive insoluble nitrogen. In high grade organic nitrogenous materials, among which, from its behavior with this treatment, must be included horn meal, the percentage of inactive nitrogen in the insoluble nitrogen is usually under 40 per cent; and the ratio of inactive to active insoluble nitrogen in such materials is usually less than 60:100. On the other hand, in the case of low-grade nitrogenous materials, the proportions of inactive nitrogen are much higher. The separations effected by these methods are therefore of great value in distinguishing whether the insoluble nitrogen is derived from high grade materials, or from low grade substances such as garbage tankage, peat, mora meal, unacidulated hair, leather, etc. There is, however, one fertilizer ingredient rapidly coming into use, whose presence may lead to erroneous conclusion, if judgment is based solely upon the facts ascertained by the foregoing method, namely, cyanamid. This substance contains from 13 to 16.5 per cent. of nitrogen, of which 12 to 14.7 per cent. is soluble in water, by the mode of treatment used in the alkaline permanganate method; and, of the 1.0 to 1.7 per cent. of water-insoluble nitrogen, less than one-fifth is active; so that the ratio of inactive to insoluble nitrogen is about 80:100. Owing to its tendency to reduce the availability of the phosphoric acid in acid phosphate mixtures, limited quantities only of this ingredient can be used advantageously in mixed fertilizers. Nevertheless, in cases where low grade sources of nitrogen are indicated by the foregoing method, it would be needful to determine, by supplementary tests, whether or not cynamid may be present to account for an undue proportion of inactive, insoluble nitrogen, before concluding that such excess of inactive nitrogenous material is attributable to low-grade nitrogenous constituents. It is desirable to keep in mind at this point the fact also that certain widely used low-grade nitrogenous substances, such as garbage tankage, peat and mora meal, are not included in the list of substances whose presence requires specific declaration under Section 4 of the Fertilizer act. (5)Chlorin—this determination is made to afford a basis for estimating the proportion of the potash that is present as chlorid or muriate, the cheaper source. The computation is made on the assumption that the chlorin present, unless in excess, has been introduced in the form of muriate of potash; but doubtless there are occasional exceptions to this rule. One part of chlorin combines

with 1.326 parts of potash to form the pure muriate; knowing the chlorin, it is, therefore, easy to compute the potash equivalent thereto. (7) In the case of ground bone, the state of sub-division is determined by sifting through accurately made sieves; the cost of preparation and especially the promptness of action of bone in the soil depend very largely on the fineness of its particles, the finer being much more quickly useful to the plant.

The legislation of 1909 has made needful some additional tests. Section 4, of the Act of May 1, 1909, prohibits the sale of "pulverized leather, hair, ground hoof, horns, or wool waste, raw, steamed, roasted, or in any form, as a fertilizer, or as an ingredient of a fertilizer or manure, without an explicit statement of the fact." All nitrogenous fertilizers have, therefore, been submitted to a careful microscopic examination, at the time of preparing the sample for analysis, to detect the presence of the tissues characteristic of the several materials above named. The act of April 23, 1909, makes it unlawful to use the word "bone" in connection with, or as part of the name of any fertilizer, or any brand of the same, unless the phosphoric acid contained in such fertilizer shall be the product of pure animal bone. All fertilizers in whose name the word "bone" appears, were therefore examined by microscopic and chemical methods to determine, so far as possible with present knowledge, the nature of the ingredient or ingredients supplying the phosphoric acid. It is a fact, however, well known to fertilizer manufacturers and which should be equally understood by the consumer, that it is, in certain cases, practically impossible to determine the source of the phosphoric acid by an examination of the finished fertilizer. The microscope shows clearly the structure of raw bone, but does not make it possible to discriminate between thoroughly acidulated bone and acidulated rock. The ratio of nitrogen to phosphoric acid in a raw bone—and only such bone as has not been deprived of any considerable proportion of its nitrogenous material by some manufacturing process can properly be called "pure animal bone"—is about 1:8, in cases where the ratio of phosphoric acid to nitrogen exceeds 8, it is clear that part, at least, of the phosphoric acid has been supplied by something else than pure animal bone; but, inasmuch as nitrogen may have been introduced in some material other than bone and no longer detectible by the microscope, the presence of nitrogen and phosphoric acid in the proportions corresponding to those of bone is not proof positive that they have been supplied by bone. Finally, the differences in the iron and silica content of bone and rock respectively, afford means of distinction useful in some cases; the usefulness of this distinction is limited, however, by the facts that kitchen bone frequently contains earthy impurities rich in iron and silica, and that earthy fillers can legally be used

in fertilizers and are in fact considerably used therein both as "make-weights" and as "conditioners," or materials introduced to improve the drilling qualities of the goods. The fact that the phosphoric acid in bone and rock are identical in character is probably so well known as to require no detailed consideration in this connection.

The law having required the manufacturer to guarantee the amount of certain valuable ingredients present in any brand he may put upon the market, chemical analysis is employed to verify the guaranties stamped upon the fertilizer sacks. It has, therefore, been deemed desirable in this report to enter the guaranty filed by the manufacturer in the office of the Secretary of Agriculture, in such connection with the analytical results that the two may be compared. An unfortunate practice has grown up among manufacturers of so wording the guaranty that it seems to declare the presence in the goods of an amount of valuable constituent ranging from a certain minimum to a much higher maximum; thus, "Potash, 2 to 4 per cent." is a guaranty not infrequently given. In reality, the sole guaranty is for 2 per cent. The guaranteed amounts given for each brand in the following tables, are copied from the guaranties filed by the maker of the goods with the Secretary of Agriculture, the lowest figure given for any constituent being considered to be the amount guaranteed. For compactness and because no essentially important fact is suppressed thereby, the guaranties for soluble and reverted phosphoric acid have not been given separately, but are combined into a single guaranty for available phosphoric acid; in cases where the maker's guaranty does not specifically mention available phosphoric acid, the sum of the lowest figures given by him for soluble and reverted phosphoric acid is used. The law of 1879 allowed the maker to express his guaranty for nitrogen either in terms of that element or in terms of the ammonia equivalent thereto; since ammonia is composed of three parts of hydrogen and fourteen parts of nitrogen, it is a very simple matter to calculate the amount of one, when the amount of the other is given; the amount of nitrogen multiplied by 1.214 will give the corresponding amount of ammonia, and the amount of ammonia multiplied by 0.824 will give the corresponding amount of nitrogen. In these tables, the expression is in terms of nitrogen. The laws of 1901 and 1909 abolished the alternative and required that the quantity shall be given in terms of nitrogen.

Many manufacturers, after complying with the terms of the law, insert additional items in their guaranties, often with the result of misleading or confusing the buyer; the latter will do well to give heed to those items only that are given as the law requires and that are presented in these tables:

A summary of the analyses made this season may be presented as follows:

Summary of Analyses Made this Season.

	Complete fertilizers.	Rock and potash.	Dissolved bone.	Dissolved rock.	Ground bone.
Number of analyses,	281	99	2	38	23
Moisture, per cent.,	8.83	8.80	7.54	8.24	5.19
Phosphoric acid.					
Total, per cent.,	9.84	11.18	11.95	15.52	23.37
Available, per cent.,	8.41	10.35	11.07	14.38	.....
Insoluble, per cent.,	1.43	.83	.88	1.14	.....
Potash, per cent.,	3.42	3.50	.....	.....	.....
Nitrogen, per cent.,	1.29	.....	.89	.....	3.40
Mechanical analyses of bone:					
Fine,	.....	.....	.....	.....	55.00
Coarse,	.....	.....	.....	.....	45.00
Commercial valuation,*	$22 64	$15 42	$19 02	$13 97	$33 45
Average selling price,*	20 83	15 21	16 05	13 78	32 20

*Dollars per ton.

The European war brought fertilizer manufacturers face to face with a serious difficulty just before the time had arrived for the filling of the fall trade orders, namely, the cutting off of the supply of German potash salts, the sole commercial source of fertilizer potash for the northern United States. The manufacturing trade made a re-adjustment to eke out their potash stocks by reducing the guaranties for certain brands rich in potash, by withdrawing almost entirely their offers of potash salts for home-mixing, and by greatly increasing the prices of these salts when sold for that purpose. Where sufficient supplies of a brand were already mixed, no changes of guaranty were made. Those brands with changed potash guaranty that are represented in this season's analyses are indicated by the printing of the potash guaranty in italics, in the analytical tables following.

No change has been made in the potash values used in calculating the "commercial valuations."

The average potash percentages, commercial valuations and selling prices for the brands analyzed in the fall of 1913 and during the present season, are as follows:

	1913.		1914.	
	Complete.	Rock and potash.	Complete.	Rock and potash.
Potash, per cent.,	4.28	4.70	3.42	3.50
Commercial valuations,	$24 36	$16 85	$22 64	$15 42
Average selling price,	$21 52	$16 25	$20 83	$15 21

The average potash percentages in the 1914 fall goods are about one per cent. less than in the 1913 fall goods, and the selling prices are correspondingly less. This means that, for the fall trade of this year, the manufacturers have not materially changed their charges for the potash contained in mixed fertilizers. The selling prices of the comparatively few lots of potash salts found upon the market and represented by figures in the table of miscellaneous analyses show, on the other hand, a very large price increase, though by no means the highest of those here and there given this season for such materials.

It is deserving of comment that the deficiencies in potash are not greater in number than in preceding seasons.

For the purpose of indicating more specifically to the eye, cases deficient from guaranty, an asterisk has been affixed in the analytical tables where the ingredient has been found less in quantity than the manufacturer guaranteed. Too great emphasis should not be placed upon very slight deficiencies, because very slight imperfections in mixing and slight variation in analysis are practically unavoidable. The asterisk has been used, therefore, only in cases where the deficiencies amount to 0.2 per cent. or more, except where nitrogen has been guaranteed in amounts no higher than 1.0 per cent., in which case an asterisk has been affixed where the deficiency amounts to 0.1 per cent. or more.

The cases of departure of goods from their guaranteed composition observed this season, including only those cases in which an asterisk has been affixed, were as follows:

Summary of Instances of Deficiency from Guaranty.

	Complete fertilizers.	Rock and potash.	Dissolved bone.	Dissolved rock.	Ground bone.
Deficient in four constituents,	1	0	0	0	0
Deficient in three constituents,	1	2	0	0	0
Deficient in two constituents,	20	8	0	0	0
Deficient in one constituent,	52	24	0	7	7
Total number of samples in which deficiencies occur,	94	34	0	7	7

The cases of deficiency noted during the past nine seasons in the composition of goods as compared with their guaranties, expressed in percentage of the total number of goods of each class analyzed, are as follows:

Percentage of Deficiency, 1910-1914.

	Spring, 1910.	Fall, 1910.	Spring, 1911.	Fall, 1911.	Spring, 1912.	Spring, 1913.	Fall, 1913.	Spring, 1914.	Fall, 1914.
Complete fertilizers,	28.9	35.9	45.1	46.9	39.0	32.3	36.0	33.1	27.1
Dissolved bone,	37.5	25.0	16.6	100.00	50.0	50.0	66.7	50.0	0.0
Rock and potash,	25.2	37.0	27.1	43.4	33.6	26.4	46.0	26.7	35.8
Dissolved rock,	4.3	6.3	[illegible]	11.9	12.5	20.9	22.5	23.3	18.9
Grouud bone,	29.17	27.6	47.8	20.0	29.2	25.0	22.2	47.8	31.8
All classes except miscellaneous,	26.5	33.5	38.7	46.0	36.0	30.4	35.0	32.0	28.0

A comparison of the average composition of all samples of complete fertilizers for which guaranties are recorded with the average of the corresponding guaranties, for several seasons past, including those of this season, follows:

Average Composition and Guaranty Compared.

	Average composition. Per cent.	Average guaranty. Per cent.
Spring, 1910.		
Phosphoric acid:		
Total,	9.80	8.80
Available,	8.26	7.62
Potash,	5.20	4.68
Nitrogen,	1.63	1.60

Average Composition and Guaranty Compared—Continued.

	Average composition. Per cent.	Average guaranty. Per cent.
Fall, 1910.		
Phosphoric acid:		
Total,	9.72	8.80
Available,	8.26	7.62
Potash,	5.20	4.68
Nitrogen,	1.63	1.60
Spring, 1911.		
Phosphoric acid:		
Total,	9.86	8.96
Available,	8.31	7.86
Potash,	4.97	4.65
Nitrogen,	1.59	1.54
Fall, 1911.		
Phosphoric acid:		
Total,	9.59	9.09
Available,	8.20	7.87
Potash,	3.63	3.39
Nitrogen,	1.12	1.19
Spring, 1912.		
Phosphoric acid:		
Total,	9.51	8.82
Available,	8.09	7.78
Potash,	5.34	5.05
Nitrogen,	1.56	1.58
Spring, 1913.		
Phosphoric acid:		
Total,	9.71	8.92
Available,	8.11	7.37
Potash,	5.41	5.17
Nitrogen,	1.61	1.62
Fall, 1913.		
Phosphoric acid:		
Total,	9.86	9.09
Available,	8.06	7.83
Potash,	4.28	4.27
Nitrogen,	1.47	1.35
Spring, 1914.		
Phosphoric acid:		
Total,	9.31	8.71
Available,	8.06	7.83
Potash,	5.67	5.52
Nitrogen,	1.81	1.69
Fall, 1914.		
Phosphoric acid:		
Total,	9.84	9.25
Available,	8.41	8.00
Potash,	3.42	2.99
Nitrogen,	1.29	1.27

It is of interest to note how closely the series of valuations based upon the wholesale price of raw materials in the principal markets during the most important buying season and upon certain average

allowances for expenses and profits on the part of the mixer and jobber, coincides with the retail prices later ascertained. A comparison for several seasons past is given below:

Comparison of Selling Price and Valuation, 1910-1914.

	Selling price.	Valuation.	Excess of valuation over selling price.
Complete fertilizers:			
1910, Spring,	25.26	26.63	1.43
Fall,	21.76	22.24	.48
1911, Spring,	24.97	25.95	.98
Fall,	21.73	22.33	.61
1912, Spring,	27.64	27.24	—.40
1913, Spring,	25.08	26.44	1.36
Fall,	21.92	24.36	2.44
1914, Spring,	24.72	26.93	2.21
Fall,	20.83	22.64	1.81
Dissolved bone:			
1910, Spring,	22.17	21.47	—.70
Fall,	25.80	25.70	—.10
1911, Spring,	20.83	23.82	3.49
Fall,	24.88	21.51	—3.37
1912, Spring,	20.94	18.92	2.82
1913, Spring,	18.55	21.63	3.08
Fall,	24.75	24.26	—.49
1914, Spring,	26.25	27.28	1.03
Fall,	16.05	19.02	2.97
Rock and potash:			
1910, Spring,	17.16	16.08	—1.08
Fall,	16.38	16.34	—.04
1911, Spring,	17.05	15.99	—1.06
Fall	16.25	16.07	—.18
1912, Spring,	18.17	16.26	—1.91
1913, Spring,	16.75	16.52	—.23
Fall,	16.25	16.85	.60
1914, Spring,	16.79	15.60	—1.19
Fall,	15.21	15.42	.21
Dissolved rock:			
1910, Spring,	14.56	14.00	—.56
Fall,	14.01	14.15	.14
1911, Spring,	15.83	14.26	—1.58
Fall,	14.00	13.78	.22
1912, Spring,	14.69	14.20	—.49
1913, Spring,	13.96	14.25	.29
Fall,	13.51	13.70	.19
1914, Spring,	14.48	13.71	—.77
Fall,	13.78	13.97	.19
Ground bone:			
1910, Spring,	30.19	30.27	.08
Fall,	29.98	31.10	1.12
1911, Spring,	30.93	31.47	.54
Fall,	31.17	31.18	.01
1912, Spring,	32.81	33.26	.45
1913, Spring,	33.86	32.50	—1.36
Fall,	31.12	32.63	1.51
1914, Spring,	31.43	30.15	—1.28
Fall,	32.20	33.45	1.25

MATERIALS USED IN FERTILIZERS.

The sampling agents report no case of declaration under the requirements of Section 4 of the fertilizer law, nor has microscopic examination shown any decisive evidence of the presence in any fertilizer of more than accidental traces of any of the substances specified in that section.

On the other hand, the results of the examination of the condition of the nitrogen in the complete fertilizers by the alkaline permanganate method affords much that is suggestive.

To keep the tables down to convenient size, the percentages of active insoluble nitrogen found have been omitted. They can be computed, however, from the figures given, by deducting from the total nitrogen the sum of the soluble and the inactive insoluble nitrogen. The ratio which the active insoluble bears to the inactive insoluble nitrogen being the principal indication the method as here used gives respecting the character of the organic nitrogenous ingredients of the fertilizer, the index letters, 'a', 'b' and 'c' have been affixed to the percentages of inactive insoluble nitrogen, to indicate the ratios between the active and inactive insoluble in the several samples. Cases in which the active constitutes three-fifths or more of the insoluble are marked 'a'; two-fifths to three-fifths, 'b', and less than two-fifths, 'c.' The New England Stations use the terms 'good,' 'doubtful' and 'poor' for these respective classes of cases.

Of the 276 samples examined this season, 62 belong to class 'a,' 192 to 'b,' and 22 to 'c.'

It is needful to keep clearly in mind the meaning of the index 'c' as thus applied. Its presence does not suffice to indicate that the fertilizer contains no readily available nitrogen, but merely that part or all of the insoluble nitrogen is derived from low-grade sources, barring cases in which cyanamid is one of the fertilizer ingredients. These low-grade materials may be such as are listed in Section 4 of the law, or others in common use, such as garbage tankage, peat or mora meal; and they may, if of animal origin, have had their nitrogenous materials changed almost entirely to an available condition by 'wet mixing,' which has, however, little improving effect upon the nitrogenous constituents of garbage tankage and mora meal, and little more upon those of peat.

The use of such low-grade materials is either to make the fertilizer less likely to become sticky or lumpy, or to supply nitrogen from

materials that would otherwise be wholly thrown to waste. The use of 'conditioners' for the former purpose is, in itself, desirable rather than objectionable; but becomes obnoxious and unjust when the nitrogen they contain in unavailable form is made the basis of a charge at high rates to the buyer. The use also of low-grade and therefore cheap nitrogen supplies whose nitrogen has, by chemical treatment, been made useful for plant-food, is laudable provided the materials are sold for what they are, instead of being sold at the prices of the nitrogen in high-grade nitrogenous ingredients.

In cases where the inactive insoluble nitrogen forms a large fraction of the total nitrogen, is marked by the index 'c,' the guaranty does not exceed the available nitrogen by an amount equal to most of the 'inactive,' and the selling price, corrected for freight difference, is not considerably less than that asked for fertilizers of like general composition but supplying nitrogen derived from high-grade goods such as bear the index 'a' or even 'b,' there is reason to believe that the buyer is being subjected to unfair treatment.

Section 1 of the Fertilizer Law of 1909 requires that the guaranty for a fertilizer shall state 'the percentage such fertilizer contains of nitrogen in an available form.' It is, however, by no means clear that the term 'available,' as used in the law, means precisely the same thing that is meant by that term when used to designate the sum of the water-soluble and active insoluble nitrogen, as determined by the present method. For some nitrogenous fertilizer ingredients always regarded as of high grade, such as dried blood, meat tankage, and cottonseed meal, contain considerable fractions of inactive insoluble nitrogen when examined by this method. Until further notice, therefore, the law will not be construed to require that the amount of nitrogen guaranteed shall not exceed that present in a form that will appear as 'available' by the alkaline permanganate method now in use.

In many of this season's samples, however, the quantity of nitrogen thus available is found equal to the percentage guaranteed. On the average, the 'available' nitrogen found was 1.49 per cent. the total, 1.81, that guaranteed, 1.69 per cent.

ORGANIZATION OF THE WORK.

The work of the season has been performed under my direction as follows:

The nitrogen determinations by Walter Thomas, B. S., and Ralph C. Bathgate, B. S.; the total phosphoric acid, by F. J. Holben, B. S.; the insoluble phosphoric acid and moisture, by H. D. Edmiston

and Bruce L. Caldwell, B. S.; the potash, by D. H. Bredt, B. S.; the chlorin, by Chas. Kern; the computations, by M. Verna Bryce and others. Mr. E. S. Erb, M. S., had charge of the reception and preparation of the samples, and immediate supervision of the analytical work. To all of these assistants the writer is indebted for loyal aid.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	THE AMERICAN AGRICULTURAL CHEM. CO., NEW YORK CITY.		
972	Baker's Standard High Grade Guano, ...	I. E. Mengel, Barnesville, ...	10.25
141	†Dead Shot Phosphate, ...	Newton Gonder, Boswell, ...	9.66
113		B. Savidge, Turbotville, ...	
312		A. G. Houtz, Myerstown, R. No. 1,	
1056	†Gold Seal Mixture, ...	Chas. Kerns, Palmerton, ...	10.21
112		Eli Yost, McEwensville, ...	
1021		Irwin M. Ebersole, New Enterprise,	
614	†High Grade Crop Producer, ...	H. F. Rittenhouse, Berwick, R. No. 3.	9.72
1104		H. H. Weller, Bechtelsville, ...	
342	Special Potash Mixture, ...	Enos Barkey, Evans City, ...	7.75
437	Bradley's Niagara Phosphate, ...	A. F. Gault, Bentleyville, ...	6.68
876	Bradley's Unicorn, ...	F. W. Hagenbuch, Danville R. No. 4.	6.42
848	Canton Chemical Baker's Fisb Guano, ..	Mark Hiltebeetel, Green Lane, ...	11.59
608	Crocker's Harvest Jewel Fertilizer, ...	H. F. Rittenhouse, Berwick, ...	10.94
587	†Crocker's New Rival Fertilizer, ...	Crowl & Greenleaf, Quarryville, ..	10.67
903		J. E. Watters, Jamestown, ...	
508	†Crocker's Nobsque Guano, ...	T. R. Bolton, Cochranton, ...	8.02
1079		Lloyd Carner, Hublersburg, ...	
819	Crocker's Potato, Hop and Tobacco Fertilizer.	J. M. Kurtz, Honeybrook, ...	8.71
297	†Detrick's Imperial Compound, ...	Geo. Hocker, Union Deposit, ...	9.71
143		Newton Gonder, Boswell, ...	
414		P. L. Homm, Spring Grove No. 1,	
298	†Detrick's Paragon Ammoniated Phosphate and Potash.	Geo. Hocker, Union Deposit, ...	8.64
723		A. M. Austine, Glen Rock R. No. 3,	
140	†Detrick's Royal Crop Grower, ...	Newton Gonder, Boswell, ...	10.32
296		Geo. Hocker, Union Deposit, ...	
1036	†Great Eastern Special Crop Fertilizer, ..	Oliver Halteman, Butztown, ...	6.96
1101		David F. Clemmer, Barto R. No. 2,	
879	Lazaretto Special Ammoniated Compound,.	F. W. Hagenbuch, Danville R. No. 4.	11.24
294	†Maryland Ammoniated Phosphate, ...	S. A. Fackler, Harrisburg R., ...	11.52
145		Alex. Bellmeyer, Washingtonville,..	
421		Jas. Jacobs, York Springs, ...	
517	Michigan Carbon Works Homstead Fertilizer.	Beible Bros., Kearsarge, ...	12.09
522	Milsom's Buffalo Guano, ...	Frank Beatty, West Springfield, ..	10.78
243	†Moro Phillips Farmers' Phosphate, ...	Levi Donkle, Myerstown R. No. 5,	9.47
840		I. J. Tustin, Phoenixville, ...	
839		I. J. Tustin, Phoenixville, ...	
746	†Moro Phillips Pure Phuine, ...	C. F. Beck, York R. No. 9, ...	9.13
917		Paxton Flour & Feed Co., Bowmansdale.	
122	Northwestern Challenge Fertilizer, ...	J. Reiman, Coleman, ...	8.90
788	Northwestern Complete Compound, ...	R. G. Ackley, Westfield R. D., ...	9.06
77	Packers Union American Wheat & Rye Grower.	A. J. Norris, Cove Forge, ...	11.18
115	Packers Union Superior Crop Grower, ...	James Bamon, Turbotville, ...	11.18
603	†Read's All Crop Fertilizer, ...	Ralph Schwalm, Valley View, ...	10.05
586		Crowl & Greenleaf, Quarryville, ...	
919		Paxton Flour & Feed Co., Bowmansdale.	
1083	Read's Pioneer Fertilizer, ...	Wm. Stover, Millheim R. D., ...	10.05
428	†Reese's Challenge Crop Grower, ...	W. P. Spohr, Dillsburg No. 5, ...	9.62
852		J. F. Stonebuck, Springtown, ...	
329	†Reese's Half and Half, ...	Wm. C. Ball, Media, ...	8.57
311		A. G. Houtz, Myerstown R. No. 1,	
796		Samuel Hummel, Monterey, ...	
1132	Reese's Harvest Queen, ...	Samuel H. Wolf, Stevens R. D. No. 2.	8.45
300	†Susquehanna Ammoniated Mixture, ...	Henry Moyer, Campbellstown, ...	9.75
285		Wm. Weaver, Freemansburg, ...	
488		Z. J. Peters, Guernsey, ...	
423	†Susquehanna Crop Grower, ...	James Jacobs, York Springs, ...	8.00
913		Percy Harman, Mt. Holly, ...	
422	†Susquehanna XXV Phospbate, ...	James Jacobs, York Springs, ...	9.64
299		Henry Moyer, Campbellstown, ...	
844		A. H. Keeley & Son, Swenksville,	

†Composite sample.

FERTILIZERS.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs., at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.94	8.00	.61	9.55	9.00	2.91	.....	2.91	3.00	1.74	1.97	b.16	2.13	2.06	26.41	24.50
8.13	8.00	1.05	9.18	9.00	2.14	.....	2.14	2.00	.29	.39	b.11	.50	.41	15.00	17.00 / 15.00 / 17.00
8.23	8.00	1.46	9.69	9.00	3.18	.....	3.18	3.00	.54	.70	b.18	.88	.82	20.68	18.00 / 18.50 / 18.50
9.67	9.00	1.52	11.19	10.00	3.02	....	3.02	3.00	.98	1.19	a.14	*1.33	1.65	24.06	23.50 / 24.00
*8.47	9.00	1.49	9.96	10.00	6.72	.....	*6.72	7.00	.56	.78	b.17	.95	.82	24.50	26.00
7.31	7.00	1.36	8.67	8.00	1.31	.....	1.31	1.00	.51	.76	b.27	1.03	.82	18.54	20.00
8.31	8.00	.50	8.81	9.00	2.61	.....	2.61	2.00	1.11	1.34	a.14	1.48	1.65	22.45	21.50
8.89	8.00	1.02	9.91	9.00	2.29	.....	2.29	2.00	1.24	1.53	a.07	1.60	1.65	23.47	25.00
8.92	8.00	.70	9.62	9.00	2.08	.....	2.08	2.00	.88	1.25	b.27	1.52	1.65	22.68	21.75
*8.69	9.00	1.72	10.41	10.00	2.85	.....	2.85	2.00	.89	1.28	a.23	1.51	1.23	23.67	19.50 / 22.00
7.89	8.00	1.54	9.43	9.00	2.25	.....	2.25	2.00	.67	.83	b.18	1.01	1.03	19.93	22.80 / .....
8.36	8.00	.91	9.27	9.00	2.95	.....	2.95	3.00	1.74	2.00	a.15	2.15	2.06	25.99	25.00
8.73	8.00	1.02	9.75	9.00	2.16	.....	2.16	2.00	.56	.73	b.13	.86	.82	19.75	..... / 18.00
7.08	7.00	1.08	8.16	8.00	1.27	.....	1.27	1.00	.66	.80	b.20	1.00	.82	17.91	17.00 / ..... / 16.00
7.98	8.00	1.34	9.32	9.00	2.63	.....	2.63	2.00	1.17	1.45	b.23	1.68	1.65	23.48	21.00 / .....
9.04	8.00	1.35	10.39	9.00	3.46	.....	3.46	3.00	.71	.94	a.15	1.09	.82	22.60	..... / 19.50
9.17	9.00	1.28	10.45	10.00	3.10	.....	3.10	3.00	.67	.82	b.19	1.01	1.03	21.90	19.00
8.25	8.00	1.25	9.50	9.00	3.38	.....	3.38	3.00	1.13	1.36	b.24	1.60	1.65	23.97	..... / ..... / 21.50
*7.29	8.00	2.70	9.99	9.00	1.79	.....	1.79	1.50	1.36	2.09	a.38	2.47	2.06	26.05	23.50
*7.65	8.00	.77	*8.42	9.00	4.36	.....	4.36	4.00	.65	.89	a.14	1.03	.82	21.52	23.50
6.89	7.00	1.05	7.94	8.00	1.56	.....	1.56	1.00	.70	.80	b.11	.91	.82	17.54	17.50 / 23.00
8.86	8.00	1.08	9.94	9.00	3.01	.....	3.01	3.00	1.20	1.44	b.18	1.62	1.65	24.13	28.00 / ..... / 23.50
8.16	8.00	.75	8.91	9.00	2.40	.....	2.40	2.00	.75	.94	b.15	1.09	1.03	20.40	20.00
8.65	8.00	1.59	10.24	9.00	3.83	.....	3.83	4.00	.54	.90	a.14	1.04	.82	22.47	22.00
8.93	8.00	.89	9.82	9.00	2.56	.....	2.56	2.00	.53	.69	b.14	.83	.82	20.26	20.00
8.09	8.00	.96	9.05	9.00	2.96	.....	2.96	3.00	.51	.69	b.22	.91	.82	20.06	.....
9.48	9.00	1.08	10.56	10.00	3.34	.....	3.34	3.00	.61	.79	b.15	.94	.82	22.11	18.00 / 17.00 / 19.50
8.81	8.00	1.14	9.95	9.00	2.14	.....	2.14	2.00	.40	.59	b.23	.82	.82	19.64	.....
8.77	8.00	1.30	10.07	9.00	2.84	.....	2.84	2.00	.76	.95	b.18	1.13	.82	21.93	15.50 / 22.00
7.27	7.00	1.25	8.52	8.00	1.65	.....	1.65	1.00	.67	.82	b.12	.94	.82	18.31	20.00 / 17.00 / 16.00
7.85	8.00	1.21	9.06	9.00	2.17	.....	2.17	2.00	.73	.95	b.19	1.14	1.03	20.29	20.00
8.04	8.00	1.16	9.20	9.00	3.22	.....	3.22	3.00	1.20	1.46	b.18	1.64	1.65	23.76	..... / ..... / 23.00
6.97	7.00	1.19	8.16	8.00	1.25	.....	1.25	1.00	.55	.70	b.19	.89	.82	17.37	13.30 / 17.50
8.61	8.00	.99	9.60	9.00	1.30	.....	1.30	1.00	.62	.77	b.18	.95	.82	19.23	16.85 / ..... / 24.00

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	AMERICAN AGRICULTURAL CHEMICAL CO.—Contined.		
100	Wheeler's Corn Fertilizer,	Daniel Ilgen, Logan Mills,	10.54
278	†Wheeler's Royal Wheat Grower,	L. J. Kuntz, Walnutport,	9.60
99		Daniel Ilgen, Logan Mills,	
406		Lloyd Garver, Shirleysburg,	
1018	Williams' & Clark's Prolific Fertilizer,	McConnell Waterson Co., Kittanning.	7.98
748	Williams' & Clark's Royal Phosphate,	J. S. Moore, Oak Dale,	10.07
317	Williams' & Clark's Springfall Phosphate,	Millhouse Bros., Mendenhall,	9.08
742	Zell's Ammoniated Superphosphate,	A. A. Ehrhart, Dallastown, R. No. 1.	10.77
46	Zell's Little Treasure,	J. D. Spaulding, Littlestown No. 5,	9.28
	AMERICAN FERTILIZING CO., BALTIMORE, MD.		
1186	American Complete Guano,	Quarryville Farmers' Asso., Inc., Quarryville.	14.19
319	†American Fish & Bone Compound,	Harvey L. Myers, Danboro,	10.41
585		Jonas Eavenson, Christiana,	
320	American Grain & Grass Compound,	Harvey L. Myers, Danboro,	11.24
1168	American Rescue Crop Guano,	Paradise Farmers' Asso., Inc., Vintage.	11.25
866	American Special Compound Guano,	Bert Hoff, Spring Grove,	7.27
192	Ammoniated Crop Compound,	W. L. Brouse, Kratzerville,	8.98
584	Bob White Emergency Compound,	Jones Eavenson, Christianna,	11.20
	ARMOUR'S FERTILIZER WORKS, INC., BALTIMORE, MD.		
111	†Farmer's Choice,	G. B. M. Fry, Muncy,	8.61
54		Jno. S. Hershberger, Everett,	
167		Grant Johnson, Millville,	
923	†Wheat Grower,	M. L. Bachman, Lebanon,	8.74
391		Ralph Gregory, Petersburg,	
996		Curtin Updegrave, Sacramento,	
	BALTIMORE FERTILIZER CO., BALTIMORE, MD.		
706	†Honest 1-7-4,	Howard Welds, McConnellsburg,	5.12
745		Adam Shankberger Dallastown,	
705	Old Honesty,	Howard Welds, McConellsburg,	5.78
	BAUGH & SONS CO., PHILADELPHIA, PA.		
1084	Baugh's Animal Bone Base & Potash Compound (for all Crops).	G. W. Frankenberger, Millheim,	7.03
607	Baugh's Balanced Plant Food (a superior fertilizer for general use).	Stanley H. Brown, Dallas,	8.24
325	†Baugh's Combination Animal Base Mixture.	W. E. Erwin, Somerton,	8.96
540		Nighard & Keller, Orangeville,	
780	Baugh's Commercial Super Phosphate,	Wright Co., Factoryville,	8.34
133	†Baugh's Double Eagle Twenty Five Dollar Phosphate.	N. H. Blough, Holsopple,	8.06
42		D. W. Faust & Son, Chambersburg,	
321		A. S. Tyson, Lansdale,	
453	Baugh's General Crop Grower (for all crops).	A. O. McClure, Burgettstown,	8.12
724	Baugh's Grand Rapid High Grade Guano,	J. P. Schuchart, New Freedom,	6.79
504	†Baugh's Pure Bone & Potash Mixture,	Geo. A. Hortymger, Red Lion,	5.38
208		Dr. J. O. Wagner, Beaver Springs,	
605		Stanley H. Browne, Dallas,	
928	†Baugh's Valley Special,	R. F. Horting, Newport,	7.61
1092		D. H. Shivery & Dr. Brokerhoff, Bellefonte, R. D.	
207	†Baugh's Wheat Fertilizer (for wheat and Grass.	Dr. J. O. Wagner, Beaver Spring,	8.82
129		N. H. Blough, Holsopple,	
264		S. E. Shenk, Newville,	
	THE BERG COMPANY, PHILADELPHIA, PA.		
318	Berg's Special Bone Manure,	Harvey L. Myers, Danboro,	8.29
1048	Berg's Ya Goot Brand,	Lovine Lerch, Bethlehem,	8.82
	BERGER BROS., EASTON, PA.		
1058	Farmers Favorite Superphosphate,	John S. Osterstock, Easton,	16.20

†Composite sample.

LIZERS--Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs., at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.61	8.00	1.45	9.46	9.00	2.57	.....	2.57	2.00	1.05	1.37	a.21	1.58	1.65	23.00	23.00
8.29	8.00	1.50	9.79	9.00	2.64	.....	2.64	2.00	.41	.61	b.20	.81	.82	19.78	20.00 20.00 20.00
7.54	7.00	.94	8.48	8.00	1.25	.....	1.25	1.00	.49	.69	b.17	.86	.82	17.64	20.00
8.04	8.00	1.08	9.12	9.00	2.16	.....	2.16	2.00	.50	.73	b.24	.97	1.03	19.48	23.00
8.98	8.00	.68	9.66	9.00	2.98	.....	2.98	3.00	1.40	1.62	b.15	*1.77	2.06	24.75	23.50
8.20	8.00	1.40	9.60	9.00	2.46	.....	2.46	2.00	1.28	1.58	a.18	1.76	1.65	23.77	21.00
7.87	7.00	.89	8.76	8.00	1.58	.....	1.58	1.00	.69	.86	b.21	1.07	.82	19.16	16.00
10.81	10.00	1.67	12.48	11.00	1.45	.....	1.45	1.00	.60	.78	b.16	.94	.82	21.96	16.28
9.13	8.00	1.62	10.75	9.00	3.68	.....	3.68	3.00	.48	1.11	b.48	1.59	1.65	25.35	22.00 22.00
9.53	9.00	1.82	11.35	10.00	3.47	.....	3.47	3.00	1.04	....	.....	1.19	.82	22.79	20.00
*9.75	10.00	1.49	11.24	11.00	3.57	.....	3.57	3.00	1.17	1.47	b.21	1.68	1.65	26.23	21.75
6.88	7.00	1.47	8.35	8.00	3.49	.....	3.49	3.00	.29	.39	c.15	.54	.41	18.01	15.00
*7.51	8.00	1.09	*8.60	9.00	2.32	.....	2.32	2.00	.34	.52	b.24	.76	.82	18.21	16.50
9.29	9.00	2.20	11.49	10.00	3.50	.....	3.50	3.00	.52	.86	c.38	1.24	1.23	24.01	23.00
*8.72	9.00	.82	9.54	9.50	3.79	.....	3.79	3.00	.42	.63	b.22	.85	.82	21.24	20.00 21.00 19.00
8.05	8.00	1.10	9.15	8.50	3.45	.....	3.45	3.00	.89	1.32	b.29	1.61	1.65	23.74	23.00 22.00 20.50
7.27	7.00	.83	8.10	8.00	3.31	.....	3.31	3.00	.50	.68	b.25	.93	.80	19.74	19.00 20.00
9.01	8.00	.68	9.69	9.00	2.53	.....	2.53	2.00	.25	.36	c.24	.60	.40	16.32	15.50
8.77	8.00	1.65	10.42	.....	2.68	.....	2.68	2.00	1.28	1.59	b.37	1.96	1.65	25.60	.....
10.78	10.00	2.13	12.91	.....	7.08	.....	7.08	7.00	1.39	1.63	b.24	1.87	1.65	31.68	28.00
10.87	10.00	1.53	12.40	.....	3.63	.....	3.63	3.00	1.07	1.45	b.31	1.76	1.65	27.69	28.00 23.00
9.31	8.00	1.61	10.92	.....	10.49	.....	10.49	10.00	.97	1.48	b.33	1.81	1.65	32.71	30.00
9.00	8.50	2.30	11.30	.....	1.64	.....	1.64	1.00	1.10	1.44	b.39	1.83	1.65	24.70	20.20 19.25 24.00
8.51	8.00	1.50	10.01	.....	1.65	.....	1.65	1.00	.66	.86	b.27	1.13	.82	20.62	20.00
9.57	8.00	1.73	11.30	.....	4.87	.....	4.87	3.00	1.17	1.72	a.32	*2.04	2.47	28.99	23.00
11.10	5.08	....	16.18	15.00	3.74	.....	3.74	3.00	.86	3.01	a.53	2.54	2.47	33.40	33.00 31.00 33.50
*10.42	11.00	1.42	11.84	.....	4.52	.....	4.52	3.00	.56	1.20	a.22	1.42	1.02	26.43	20.00 ..... 19.60
8.72	8.00	1.98	10.70	.....	2.84	.....	2.84	2.00	1.02	1.35	b.39	1.74	1.65	24.96	21.00 21.00
8.64	7.00	2.08	*10.72	11.00	3.40	.....	3.40	3.00	.57	1.07	a.28	*1.35	2.00	23.60	24.00
10.32	8.00	1.24	11.57	11.00	3.27	.....	3.27	2.00	.69	1.13	a.22	1.35	.82	24.79	17.50
7.41	7.00	.97	8.38	8.00	3.08	.....	3.08	2.50	.45	.86	b.42	1.28	.82	21.33	18.00

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	BOWKER FERTILIZER CO., BOSTON AND NEW YORK.		
543	†Bowker's Hill & Drill Phosphate,	M. P. Whitenight, Bloomsburg,	9.40
526		H. L. Rommel, Enon Valley R. No. 1.	
1008	Bowker's 6% Potato Fertilizer,	H. L. Stultz, Altoona,	8.88
94		Sehettig Bros., Ebensburg,	
696	†Bowker's Sure Crop Phosphate,	W. D. Smith, Jefferson,	9.78
652		H. W. Aurand, Middleburg,	
770		H. M. Spaulding & Son, Troy,	
	ELIAS S. BRUBACHER, RICHLAND, PA.		
249	Brubacher's Wheat & Grass Special Phosphate.	Elias S. Brubacher, Richland,	9.30
	CAMBRIA FERTILIZER CO., JOHNSTOWN, PA.		
1007	Standard Phosphate,	G. B. Plunket, Dean,	5.06
	CENTRAL CHEMICAL CO., THOMAS FERTILIZER WORKS, HAGERSTOWN, MD.		
471	†C. C. C. Crescent Jewel,	Nickles & Stewart, Shippensburg,	8.45
882		Chas. Wertz, Danville,	
666	†C. C. C. Farmers' Century Brand,	Adam Krug, Allenwood,	7.36
978		Saml. Savidge, Valley View R. D.,	
888	C. C. C. Fish Bone & Potash,	Reed & Erdman, Paxinos,	6.64
998	C. C. C. Fish Guano,	Saml. Savidge, Valley View,	7.12
980	C. C. C. Superior Planter's Mixture,	Saml. Savidge, Valley View,	7.02
655	Dominion Compound,	John Wingert, Lewisburg,	9.29
493	†Valley Queen,	Biglerville Warehouse Co., Biglerville.	6.34
999		Saml. Savidge, Valley View,	
	THE COE MORTIMER CO., NEW YORK CITY.		
271	†E. Frank Coe's Onondaga Special Fertilizer (for all crops).	Erwin Missinger & Co., Tatamy,	7.35
440		I. W. Scott & Co., Pittsburgh,	
574	E. Frank Coe's Penna. No. 1 Grain Special for Wheat, Rye & Oats.	E. A. Barthalomew, Saylorsburg,	9.43
214	E. Frank Coe's Prolific Crop Producer,	H. W. Orwig, Mifflinburg,	9.67
779	†E. Frank Coe's Red Brand Excelsior Guano (for market gardening).	Abbington Lumber Co., Dalton,	8.27
444		I. W. Scott & Co., Pittsburgh,	
1125		J. H. Reitz, Millway,	
621	†E. Frank Coe's Universal Fertilizer,	Frank Wharmby, Nuremburg,	10.50
273		Erwin Messinger & Co., Tatamy,	
811		L. A. Geiger, Joanna,	
778	E. Frank Coe's Western New Yorker,	Abbington Lumber Co., Dalton,	10.52
785	†E. Frank Coe's Wheat & Buckwheat Special.	E. D. Tubbs, Osceola,	7.66
572		E. A. Berthalomew, Saylorsburg,	
1097		J. G. Emert, Somerset,	
	COLUMBIA GUANO CO., BALTIMORE, MD.		
544	†Columbia Fish Phosphate & Potash,	M. P. Whitenight, Bloomsburg,	6.41
1111		John Fisher, Boyertown,	
546	†Columbia Special Grange Formula,	M. P. Whitenight, Bloomsburg,	7.42
556		Thomas Kunkle, Easton,	
	THE CONSUMERS' CHEMICAL CORPORATION, NEW YORK.		
276	Consumers' Corn & Oats Compound,	J. J. Shoemaker, Walnutport,	8.33
274	Consumers' Special Sweet Potato Fertilizer.	J. J. Shoemaker, Walnutport,	7.53
	HENRY COPE & CO., LINCOLN UNIVERSITY, PA.		
634	Pure Bone Phosphate,	Lyburn Whitaker, Oxford,	12.37
632	Queen of Elk Valley Phosphate,	Lyburn Whitaker, Oxford,	6.71
	JOSIAH COPE & CO., BALTIMORE, MD.		
582	†Cope's Wheat & Grass Special,	Jones Eavenson, Christiana,	9.72
48		J. H. Kelly, Littlestown,	
1022		R. C. Smith, Point,	

†Composite sample.

LIZERS—Continued

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs., at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.92	9.00	1.36	10.28	10.00	2.54	.....	2.54	2.00	1.83	2.19	a.20	2.39	2.47	27.57	..... / 25.00 / 26.00
6.76	6.00	.70	7.46	7.00	6.74	.....	6.74	6.00	.64	.84	b.20	1.04	.82	22.89	23.00
8.95	9.00	1.35	10.30	10.00	2.42	.....	2.42	2.00	.52	.74	b.20	.94	.82	20.82	22.00 / ..... / 22.00
*7.76	8.00	1.02	8.78	.....	2.27	.....	2.27	2.00	.35	.57	b.24	.81	.82	18.64	17.00
6.74	6.00	2.12	8.86	7.00	5.67	.....	5.67	3.00	.49	1.10	b.54	1.64	1.50	25.24	25.00
*8.34	9.00	.83	9.17	.....	3.39	.....	3.39	3.00	.64	.84	b.18	1.02	.82	21.13	19.00 / 18.00
8.01	8.00	1.11	9.12	.....	2.07	.....	2.07	2.00	.33	.56	b.25	.81	.82	18.70	17.00 / 16.25
7.35	7.00	.64	7.99	.....	3.47	.....	3.47	3.00	.40	.67	b.27	*.94	1.04	19.86	20.00
7.93	8.00	.71	8.64	.....	4.76	.....	4.76	4.00	.43	.65	b.23	.88	.82	21.51	18.00
*7.13	8.00	.68	7.31	.....	4.44	.....	*4.44	6.00	.36	.54	b.21	.75	.82	19.68	19.75
10.87	11.00	.74	11.61	.....	4.14	.....	4.14	4.00	1.04	1.44	a.25	1.69	1.65	27.56	21.75
7.85	8.00	.78	8.63	.....	6.26	.....	6.26	5.00	1.20	1.43	b.20	1.63	1.65	26.31	22.00 / 25.00
7.49	7.00	1.19	8.68	8.00	1.53	.....	1.53	1.00	.41	.69	b.22	.91	.82	18.22	13.60 / 23.00
8.35	8.00	1.08	9.43	9.00	2.96	.....	2.96	3.00	.95	1.20	b.18	1.38	.82	22.66	19.50
9.28	9.00	1.00	10.28	10.00	2.88	.....	2.88	2.00	1.94	2.35	a.24	2.59	2.47	29.01	.....
7.89	8.00	1.98	9.87	9.00	7.51	.....	7.51	7.00	2.64	3.09	a.27	3.36	3.29	35.88	42.00 / 41.00 / 32.00
8.18	8.00	1.39	9.57	9.00	3.39	.....	3.39	3.00	1.10	1.49	b.21	1.70	1.65	24.43	..... / ..... / .....
8.17	8.00	1.56	9.73	9.00	4.41	.....	4.41	4.00	.50	.85	b.24	1.09	.82	22.75	25.00
8.66	8.00	1.85	10.51	9.00	2.62	.....	2.62	2.00	.29	.49	b.15	.64	.41	16.76	20.00 / 17.50 / 17.00
8.29	8.00	2.04	10.33	8.50	3.55	.....	3.55	3.00	1.09	1.49	b.22	1.71	1.65	25.02	22.50 / 22.00
9.61	9.00	1.56	11.17	9.50	3.63	.....	3.63	3.00	.65	.88	a.09	.97	.82	22.77	19.00 / 18.00
8.76	8.00	1.75	10.51	9.00	4.51	.....	4.51	4.00	.73	.94	a.14	1.08	.82	23.50	18.00
8.16	8.00	1.44	9.60	9.00	8.83	.....	*8.83	10.00	1.52	1.79	b.20	1.99	1.65	31.03	26.00
11.15	8.00	1.38	12.53	10.00	2.93	.....	2.93	2.50	.88	1.38	a.19	1.57	1.64	26.35	28.00
12.03	7.00	.34	12.37	9.00	8.13	.....	8.13	8.00	1.64	1.73	c.20	1.93	1.75	28.96	26.00
7.99	8.00	1.38	9.37	9.00	1.97	.....	1.97	1.00	.58	.80	b.17	.97	.82	13.67	18.00 / 16.00 / 14.00

a, b, c. Characters indicating the proportion of insoluble [illegible] inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	JAS. G. DOWNWARD CO., COATESVILLE, PA.		
1163	All Crop Fertilizer,	John F. Lapp, Bird-in-Hand	6.12
1187	Ammoniated Phosphate,	A. S. Young, Washingboro R. 1,	7.80
822	Corn, Wheat & Grass Special,	Isaac Tomlison, Huntingdon Valley,	7.76
	WALLACE DUNGAN, DOYLESTOWN, PA.		
858	Pebble Hill Home Made Animal Mixture,	Wm. J. Hallowell, Hallowell,	8.00
	EASTERN CHEMICAL CO., NEW YORK.		
34	Eastern Buckeye Special,	John A. Diehl & Co., Chambersburg,	7.73
	AMOS EBY, LEMANS PLACE, PA.		
1162	Pequea Economy,	F. G. Shirk, Bird-in-Hand,	12.33
	F. C. EISEMAN, MEADVILLE, PA.		
510	General Crop Grower,	F. C. Eiseman, Meadville,	5.47
	EUREKA CHEMICAL CO. OF BALTIMORE CITY, BALTIMORE, MD.		
411	Eureka Big Crop Grower,	E. H. Fink, York, No. 8,	5.13
678	Eureka Corn & Potato,	C. S. Funk, New Staton,	6.05
738	Eureka Farmers' Favorite,	J. T. Smith, Rittersville,	5.45
897	†Eureka Grain & Grass,	D. J. Shock, Montoursville R. No. 2,	7.52
410		E. H. Fink, York, No. 8,	
983		Theodore Schneck, Pine Grove,	
	FARMERS' FERTILIZER & FEED CO., WESTMINSTER, MD.		
473	Carroll Phosphate,	J. D. Garman, Shippensburg,	8.02
480	XX Phosphate,	J. D. Garman, Shippensburg,	7.35
	FARMERS' FERTILIZER WORKS, ELIZABETHTOWN, PA.		
396	Grain & Grass Special,	Graybill & Son, Belleville,	7.92
1154	Farmers' I. X. L.,	H. S. Newcomer, Mt. Joy,	7.62
966	Special Compound,	John Sheets, Elizabethville,	7.74
	W. S. FARMER & CO., BALTIMORE, MD.		
727	W. S. Farmer & Co.'s Harvest Queen,	A. Trout, Stewartstown,	9.50
	MAHLON FRETZ, SELLERSVILLE, PA.		
327	Fretz's Standard Phosphate,	Mahlon Fretz, Sellersville,	6.23
	GRIFFITH & BOYD CO., BALTIMORE, MD.		
505	Ammoniated Bone Phosphate,	D. W. Gheley, Windsor,	9.03
382	Animal Bone with Potash,	Jacob Coleman, Gratz,	8.70
829	Farmers' Crop Grower,	W. H. Walker & Co., Kennett Square.	6.33
349	†Fish, Bone & Potash,	Harmony Cereal Mills, Harmony,	7.50
604		Lewis Neuser, Llewlyn,	
350	†Harvest Queen Phosphate,	Harmony Cereal Mills, Harmony,	8.85
658		W. G. Kline, Lewisburg,	
108	†Peerless Fertilizer,	Artley Bros., Muncy,	8.27
8		B. F. Gaymon, Thompsontown,	
241		Geo. A. Wolf & Son, Mt. Wolf,	
384	†Special Royal Guano,	Jacob Coleman, Gratz,	7.74
110		Artley Bros., Muncy,	
506		D. W. Gheley, Windsor,	
659	Special Trucker,	W. G. Kline, Lewisburg,	9.01
657	†Valley Fertilizer,	W. G. Kline, Lewisburg,	6.01
670		B. F. Gayman, Thompsontown,	
	W. S. HASTINGS & SON, ATGLEN, PA.		
647	Atglen Brand,	W. S. Hastings & Son, Atglen,	7.12
	S. M. HESS & BRO., PHILADELPHIA, PA.,		
105	†Ammoniated Super Phosphate,	S. J. Brungard, Salona, R. D. No. 1.	10.00
15		Wm. Gross, Beaver Springs, R. D.,	
174		J. R. Iddings, Mifflinburg,	

†Composite sample.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs., at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
7.67	7.00	.55	8.22	8.00	3.63	.....	3.63	3.00	.11	.30	b.20	.50	.41	15.90	.....
7.29	7.00	.55	7.84	8.00	4.05	.....	4.05	3.00	.22	.66	a.28	.94	.82	20.34	22.00
8.17	7.00	.69	8.86	8.00	3.89	.....	3.89	3.00	.71	.95	b.32	*1.27	1.65	22.50	29.00
8.81	9.00	3.49	12.30	12.00	4.60	.....	*4.60	5.00	1.30	2.11	a.42	*2.53	3.29	31.10	32.00
8.37	8.00	.77	9.14	.....	4.05	.....	4.05	4.00	.42	.64	b.27	.91	.82	21.32	17.00
9.46	9.00	1.69	11.15	11.00	3.80	.....	3.80	2.50	.87	1.17	c.51	1.68	1.65	26.25	24.00
7.37	3.70	8.35	15.72	10.20	8.71	.....	8.71	6.00	.72	1.20	a.32	1.52	1.50	31.10	26.00
8.12	7.00	.64	8.76	7.50	3.11	.....	3.11	3.00	.81	1.06	b.24	*1.30	1.65	21.88	22.00
*8.30	9.00	.85	*9.15	9.50	3.36	.....	3.36	3.00	.64	.85	b.24	1.09	.82	21.51	21.00
8.25	8.00	.55	8.80	8.50	2.57	.....	2.57	2.00	1.24	1.44	b.22	1.66	1.64	23.05	16.00
8.06	8.00	.71	8.77	8.50	2.48	.....	2.48	2.00	.53	.68	b.18	.86	.82	19.22	{18.00 {18.00 {20.00
7.99	8.00	.77	*8.76	9.00	2.32	.....	2.32	2.00	.21	.34	b.21	.55	.41	17.64	.....
9.22	9.00	.61	9.83	10.00	3.67	.....	3.67	3.00	.64	.79	b.22	1.01	.82	22.18	18.50
9.85	8.00	.73	10.58	.....	3.89	.....	3.89	4.00	.52	.73	b.28	1.01	.82	23.11	20.00
8.77	8.00	1.40	10.17	.....	3.00	.....	3.00	2.00	.37	.93	b.70	1.63	1.65	24.40	21.00
8.48	7.00	1.08	9.56	.....	2.14	.....	2.14	1.00	.49	.72	b.28	1.00	.82	20.20	.....
9.03	9.00	1.36	10.39	10.00	3.48	.....	3.48	3.00	.73	.95	b.18	1.13	1.03	21.20	.....
*5.87	7.00	1.84	*7.71	8.75	1.39	.....	1.39	1.00	.71	.85	b.17	1.02	.80	17.16	20.00
8.58	8.00	1.72	10.30	9.00	2.91	.....	2.91	2.00	1.20	1.48	b.20	1.68	1.65	24.52	20.00
*8.58	9.00	1.67	10.25	10.00	3.32	.....	3.32	3.00	.91	1.38	b.36	1.74	1.65	25.11	23.50
7.93	6.50	2.69	10.62	7.50	3.13	.....	3.13	3.00	.56	1.02	a.28	*1.30	1.65	20.43	23.00
7.93	7.00	1.85	9.78	8.00	3.26	.....	3.26	3.00	1.06	1.24	c.40	1.64	1.50	24.04	{24.00 {19.00
*8.03	9.00	1.79	9.82	10.00	4.19	.....	4.19	3.00	.38	.62	b.21	.83	.85	21.36	{23.00 {19.00
8.44	8.00	3.10	11.54	9.00	2.65	.....	2.65	2.00	.20	.29	c.17	.46	.41	19.10	{16.50 {14.50 {15.00
7.83	8.00	1.26	9.09	9.00	3.75	.....	3.75	3.00	.61	.75	b.15	.90	.85	20.71	{23.50 {25.00 {18.00
*7.78	8.00	1.35	9.13	9.00	4.31	.....	4.31	3.00	.60	1.01	a.23	*1.24	1.65	22.83	.....
8.05	8.00	2.40	10.45	9.00	3.70	.....	3.70	3.00	.31	.40	c.15	.55	.41	17.12	{16.00 {17.00
*7.58	8.00	.64	8.22	.....	5.30	.....	5.30	5.00	1.10	1.33	b.28	1.61	1.65	24.80	24.00
8.76	8.00	1.02	9.78	9.00	2.50	.....	2.50	2.00	1.17	1.39	b.20	1.59	1.65	23.53	{21.00 {21.25 {20.75

*Constituent falls below guaranty.

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	S. M. HESS & BRO., PHILADELPHIA, PA. Continued.		
182	†Farmers' General Fertilizer,	John Miller, Winfield, R. D.,	9.89
134		Moses Weaver, Holsopple,	
188		J. B. Harrold, Port Treverton,	
135	†Fish & Potash Manure,	Moses Weaver, Holsopple,	9.61
14		Wm. Gross, Beaver Springs R. D.,	
176		J. R. Iddings, Mifflinburg,	
104	†Wheat & Grass Manure,	S. J. Brungard, Salona, R. D. No. 1,	9.60
68		A. F. Hengst, Osterberg, R. D.,	
136		Moses Weaver, Holsopple,	
	P. HOFFMAN & BRO., RAUBSVILLE, PA.		
855	Granger's Choice,	P. Hoffman & Bro., Raubsville,	2.79
	M. P. HUBBARD & CO., INC., BALTIMORE, MD.		
24	†Hubbard's Excelsior Super Phosphate,	Albert Heinboch, Middleburg,	6.26
158		J. G. Rishel, Jerseytown,	
166		S. L. Garner, Pine Summit,	
23	†Hubbard's Farmer's Acme,	Albert Heinboch, Middleburg,	8.26
190		F. A. Benganor, Port Treverton,	
	THE HUBBARD FERTILIZER CO., BALTIMORE, MD.		
920	Hubbard's Climax Phosphate,	L. G. Landis, Penbrook R. No. 2,	8.51
226	†Hubbard's Oriental Phosphate,	J. Emery Moul, Iron Ore,	7.22
22		H. G. Frock, McClure,	
674		W. H. Sieber, McAllister,	
181	†Hubbard's Standard Phosphate,	L. L. Spangler, Mifflinburg,	8.40
73		L. R. Over, Curry,	
991		Westley Seltzer, Orwigsburg,	
	INTERNATIONAL AGRICULTURAL CORPORATION, BUFFALO FERTILIZER WORKS, BUFFALO, N. Y.		
434	Big Bonanza,	Reynoldsville Hdw. Co., Reynoldsville.	7.10
901	†Buffalo Two, Eleven, Three,	Alva Beight, Edinburg R. D.,	10.37
449		J. M. Raub & Bro., Midway,	
1091		D. H. Shivery, Bellefonte,	
512	Celery & Potato Special,	H. B. Edwards Co., Titusville,	9.55
906	Farmer's Choice,	A. C. Daugherty, Grove City,	7.61
450	†Fish Guano,	J. M. Raub & Co., Midway,	10.21
513		H. B. Edwards, Titusville,	
	KEYSTONE BONE FERTILIZER CO., PHILADELPHIA, PA.		
380	†Keystone Excelsior Wheat Grower,	Chas. Schoffstal, Valley View,	9.45
301		A. B. Bomgardner, Palmyra,	
575		Fogel & Eberts, Freemansburg,	
1110	Keystone General Manure,	John Fisher, Boyertown R. No. 2,	8.65
385	†Keystone Grain & Grass Manure,	Chas. Schoffstal, Valley View,	7.77
302		A. B. Bomgardner, Palmyra,	
602		Alfred Baver, Kutztown,	
794	†Keystone Special Penna. Grain Mixture,	Alfred Baver, Kutztown,	8.09
578		Fogel & Eberts, Freemansburg,	
964		H. O. Miller, Hummelstown,	
	LANCASTER BONE FERTILIZER CO., LANCASTER, PA.		
740	†Complete Ammoniated Bone Manure,	Josiah Flenchbaugh, Windsor,	9.62
9		John W. Garman, Richfield,	
967		John D. Hartman, Millersburg,	
149	†Keystone Standard,	John A. Cooper, Washingtonville,	9.74
82		Rhule & Aucker, Williamsburg,	
870		C. M. Warner, Larne,	
968	Scientific Animal Bone Compound,	John D. Hartman, Millersburg,	10.35
739	Special Guano,	Josiah Flinchbaugh, Windsor,	8.34

†Composite sample.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs., at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.43	8.00	1.17	9.60	9.00	3.19	.....	3.19	3.00	.05	.26	c.58	.84	.82	20.52	..... / 19.50 / 19.20
8.57	8.00	.99	9.56	9.00	3.23	.....	3.23	3.00	1.15	1.39	b.21	1.60	1.65	24.02	23.50 / 22.00 / 22.75
8.75	8.00	.87	9.62	9.00	2.53	.....	2.53	2.00	.62	.75	b.12	.87	.82	20.06	18.80 / 19.00 / 18.00
6.01	6.00	7.97	13.98	10.00	1.28	.....	1.28	1.00	.41	.75	a.19	.94	.82	19.94	22.00
8.09	8.00	1.15	*9.24	9.50	2.67	.....	2.67	2.00	.38	.52	b.28	.80	.83	19.41	17.00 / 16.25
8.38	8.00	1.02	9.40	9.50	4.71	.....	4.71	4.00	.39	.60	b.25	.85	.83	21.84	20.00 / 18.00 / .....
7.64	7.00	1.44	9.08	8.00	3.91	.....	3.91	3.00	.40	.66	b.25	.91	.82	20.74	19.00
8.61	8.00	1.75	10.36	9.00	2.82	.....	2.82	2.00	.46	.73	b.31	1.04	.82	21.49	17.00 / 17.00 / .....
8.14	8.00	1.31	9.45	9.00	3.59	.....	3.59	3.00	.88	1.39	b.40	1.79	1.64	25.00	..... / 21.00 / .....
7.94	8.00	1.28	9.22	9.00	4.29	.....	4.29	4.00	.54	.83	a.16	.99	.80	21.80	22.00
*10.64	11.00	1.95	12.59	12.00	3.45	.....	3.45	3.00	1.14	1.58	b.25	1.83	1.60	27.94	22.00 / 23.00 / .....
8.15	8.00	1.71	9.86	9.00	10.52	.....	10.52	10.00	.56	.89	a.14	*1.03	1.60	28.45	28.00
9.24	8.00	1.22	10.46	9.00	5.02	.....	5.02	5.00	.46	.78	b.25	1.03	.80	24.04	23.00
*8.57	9.00	2.39	10.96	10.00	2.57	.....	2.57	2.00	.50	.80	b.33	1.13	.80	21.97	21.00 / 22.00
7.81	7.00	.99	8.80	8.00	5.81	.....	5.81	5.00	.43	.65	c.25	.90	.82	22.51	19.50 / ..... / 20.00
9.09	8.00	1.11	10.20	9.00	3.46	.....	3.46	3.00	.57	.83	b.22	1.05	1.23	22.32	21.00
7.10	7.00	1.19	8.29	8.00	2.16	.....	2.16	1.00	.35	.57	c.34	.91	.82	18.39	16.50 / ..... / 17.00
8.38	8.00	1.26	9.64	9.00	2.81	.....	2.81	2.00	.54	.71	b.28	.99	.82	20.82	18.50 / 18.00 / 19.00
8.07	8.00	1.21	9.28	9.00	2.70	.....	2.70	2.00	.41	.61	b.25	.86	.82	19.71	19.00 / 19.00 / .....
*9.56	10.00	.74	*10.30	11.00	2.49	.....	2.49	2.00	.13	....	.....	.31	.29	15.32	16.50 / 18.00 / 16.50
8.63	8.00	1.34	9.97	9.00	3.00	.....	*3.00	4.00	.65	.93	b.24	1.17	1.25	21.94	.....
7.40	7.00	1.08	8.48	8.00	3.14	.....	*3.14	4.00	.65	.82	b.17	.99	.82	20.06	20.00

*Constituent falls below guaranty.

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less: b=2/5 to 3/5; c=3/5 or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	LANCASTER CHEMICAL CO., LANCASTER, PA.		
1177	Flag Brand No. 5,	New Providence Coal Co., New Providence.	7.92
195	Hard Times Fertilizer No. 6,	J. A. Walters, Middlehurg,	9.81
196	Success Brand,	J. A. Walters, Middlehurg,	10.48
201	†Wheat & Grass No. 14,	J. A. Walters, Middleburg,	9.31
1116		B. F. Fink, Ephrata,	
	LEBANON FERTILIZER WORKS, LEBANON, PA.		
1065	Levan's Harvest Queen,	J. E. Stover, Thompsontown, R. D.,	8.91
626	Levan's Special Truck Fertilizer,	J. W. Kunkle, Secy., Barnesville,..	7.90
1064		J. E. Stover, Thompsontown, R. D.,	
973	†Levan's Wheat & Grass Fertilizer,	J. W. Kunkle, Secy., Barnesville,..	6.63
1126		E. O. Hacker, Lincoln,	
	LISTER'S AGRICULTURAL CHEM. WORKS, NEWARK, N. J.		
306	†Lister's Ammoniated Dissolved Super	Jacob Groh, Lickdale,	11.46
326	Phosphate.	Wm. Hohensack, Ivyland,	
117		B. Savidge, Turbotville,	
16	†Lister's Golden Sheaf,	H. G. Frock, McClure,	8.50
481		Allison & Fogelsonger, Shippenshurg	
69		Jacob Bowser, St. Clairsville,	
56	†Lister's Harvest Queen, Phosphate,	Everett Hdw. Co., Everett,	10.78
183		B. F. Dock, Winfield,	
119		B. Savidge, Turbotville,	
88	†Lister's Special Wheat Fertilizer,	Jacob Krug, Hastings,	7.76
212		W. A. Ewing, Mifflinburg,	
211		W. A. Ewing, Mifflinburg,	
118	†Lister's Standard Pure Super Phosphate	B. Savidge, Turbotville,	11.76
419	of Lime.	W. H. Schriver, Dillsburg,	
773	Lister's 10% Potato Grower,	L. F. Root, Canton,	14.35
191		M. P. Herman, Selinsgrove,	
114	†Lister's Valley Brand Fertilizer,	B. Savidge, Turbotville,	6.94
281		Redline & Arndt, Cherryville,	
89		Jacob Krug, Hastings,	
58	†Lister's Wheat and Rye Fertilizer,	Everett Hardware Co., Everett,	10.95
730		A. M. Grove, Muddy Creek Forks,..	
	FREDERICK LUDLAM CO., BALTIMORE, MD.		
403	Ludlam's Cecrops Fertilizer, A. B. F. Brand.	S. L. Smith, Mill Creek,	8.79
472	†Ludlam's Cecrops Fertilizer, All Crop	Ed. Diehl, Shippenshurg,	10.42
872	Fertilizer.	F. J. Beck, Jacobus,	
1181	Ludlam's Cecrops Fertilizer, Special Guano.	Wm. J. Hess, Quarryville,	8.38
	MAPES FORMULA AND PERUVIAN GUANO CO., NEW YORK.		
1150	The Mapes Grain Brand,	E. M. Martin, New Holland,	8.54
	D. B. MARTIN CO., PHILADELPHIA, PA.		
588	Martin's Bull Head Fertilizer for Cotton and Tobacco.	Crowl & Greenleaf, Quarryville,	11.84
824	Martin's Corn and Cereal Special,	N. B. Keim & Son, Langhorne,	9.30
424	Martin's Crop Producer,	Cook Grain and Feed Supply Co., Dillsburg.	9.71
589		Crowl & Greenleaf, Quarryville,	
38	†Martin's Dissolved Organic Compound,	Diehl, Omwake & Diehl, Chambersburg.	11.82
640		Passmore & Co., Nottingham,	
35	†Martin's Extra Sure Grower,	John A. Diehl & Co., Chambersburg,	7.60
280		J. J. Shoemaker, Walnutport,	
1151	Martin's Pure Animal Bone and Potash,	J. C. Nolf, New Holland,	4.41
984	Martin's Sure Grower,	John Miller, Rock,	12.00

†Composite sample.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs., at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.97	8.00	.49	9.46	9.00	1.99	.....	1.99	2.00	.82	1.04	a.08	1.12	1.24	20.71	20.00
8.25	8.00	.67	8.92	9.00	2.39	.....	2.39	2.00	.70	.87	b.14	1.01	.41	19.99	16.00
8.75	8.00	.41	9.16	.....	2.22	.....	*2.22	3.00	.53	.76	a.09	.85	.82	19.51	18.00
8.67	8.00	.69	9.36	9.00	2.54	.....	2.54	2.00	.42	.69	b.19	.88	.82	19.88	17.00 20.00
*7.22	8.00	.83	*8.05	9.00	9.66	.....	*9.66	10.00	1.73	2.38	b.57	*2.95	3.30	34.87	35.00
*6.55	7.00	1.28	7.83	8.00	7.98	.....	*7.98	10.00	1.33	1.48	c.25	1.73	1.65	27.37	25.00
*7.61	8.00	1.10	8.71	*9.00	5.38	.....	5.38	5.00	.29	.58	b.33	.91	.82	21.97	20.75 20.00 20.00
8.03	8.00	2.10	10.13	9.00	2.37	.....	2.37	1.50	1.09	1.68	b.37	2.05	2.06	25.22	..... 28.00
*7.70	8.00	.78	*8.48	9.00	2.66	.....	2.66	2.00	.26	.36	b.13	.49	.41	15.06	15.00 15.25 15.50
8.95	9.00	1.41	10.36	10.00	2.45	.....	2.45	2.00	.88	1.17	b.26	1.43	1.23	23.17	19.00 22.00 19.50
*7.66	8.00	2.45	10.11	9.00	3.42	.....	3.42	3.00	.76	1.30	b.51	1.81	1.65	24.85	21.50 24.95 21.15
*8.66	9.00	2.99	11.65	10.00	2.28	.....	2.28	2.00	1.61	2.10	b.31	2.41	2.47	27.79	23.00 24.00 25.00
6.36	6.00	1.32	7.68	7.00	9.07	.....	*9.07	10.00	2.52	2.95	b.33	3.28	3.29	35.29	38.00
*7.64	8.00	1.55	9.19	9.00	2.99	.....	2.99	3.00	.59	.92	b.19	1.11	.83	20.84	19.50 18.00 20.00
7.92	8.00	1.70	9.62	9.00	2.72	.....	2.72	2.00	1.09	1.46	b.25	1.71	1.65	23.62	23.95 22.00 .....
8.76	8.00	1.12	9.88	9.00	2.77	.....	2.77	2.00	1.29	1.51	b.18	1.69	1.65	24.30	19.65
8.79	8.00	1.14	9.93	9.00	3.28	.....	3.28	3.00	.73	.91	b.18	1.09	.82	22.11	17.50 16.75
7.98	8.00	1.33	9.31	9.00	3.04	.....	3.04	3.00	1.26	1.45	b.15	1.60	1.65	23.38	.....
8.30	8.00	1.26	9.56	.....	4.83	.....	4.83	4.00	.43	.62	c.34	.96	.82	22.46	25.00
*7.51	8.00	1.26	8.77	.....	3.23	.....	3.23	3.00	1.52	1.75	b.26	*2.03	2.47	25.12	18.50
7.97	8.00	1.08	9.05	.....	2.50	.....	2.50	2.00	1.07	1.32	b.25	1.57	1.65	22.51	22.00
11.21	10.00	2.05	13 26	.....	1.66	.....	1.66	.....	.50	.77	b.27	1.04	1.03	23.18	15.00
9.69	9.00	1.72	11.41	.....	2.32	.....	2.32	2.00	.61	.83	b.31	1.14	1.03	22.57	16.00 17.00 18.00
*7.52	8.00	1.83	9.35	.....	2.15	.....	2.15	2.00	.29	.50	b.33	.83	.82	18.88	16.00 16.50
6.13	....	10.00	16.13	16.00	3.13	.....	3.13	2.50	.83	1.41	a.23	1.64	1.65	26.02	23.00
8.44	8.00	1.26	9.70	.....	1.28	.....	1.28	1.00	.43	.63	c.32	.95	.82	19.20	18.00

*Constituent falls below guaranty.

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	MILLER FERTILIZER CO., BALTIMORE, MD.		
662	†Hustler Phosphate,	Peter House, New Columbia,	6.29
291		Chas. Oiler, Carlisle, R. No. 3,	
726		J. P. Shuebart, New Freedom,	
416	†Ammoniated,	S. M. Bare & Son, Bairs,	6.86
106		Calvin Dilks, Lairdsville,	
464	†M. B. S.,	J. Miller Sons, New Kingston,	6.33
203		Jos. M. Homberger, Middleburg,	
101		W. L. Wolfe, Booneville,	
253		C. R. Bucher, R. No. 4, Myerstowu,	
	MOWRY-LATSHAW HDW. CO., SPRING CITY, PA.		
629	Clover Brand Fertilizer,	Mowry, Latshaw & Co., Spriug City,	12.52
	NASSAU FERTILIZER CO., NEW YORK.		
462	†Big Yield,	W. S. Thumma, Mechanicsburg,	10.00
537		B. A. Ikeler, Bloomsburg,	
1109	Plow Brand,	John Fisher, Boyertown,	9.03
460	†Special Mixture,	W. S. Thumma, Mechanicsburg,	10.29
570		J. J. Yetter, Stroudsburg,	
461	†Wheat and Grass Grower,	W. S. Thumma, Mechanicsburg,	10.22
177		Shaffer & Snyder, Mifflinburg,	
550		Irvin Kreisher, Catawissa,	
	G. OBER & SONS CO., BALTIMORE, MD.		
154	Ober's Farmers' Mixture,	John A. Cooper, Washingtenville,	10.56
961	Ober's Independent Ammouiated Super Phosphate.	P. A. Enders, Halifax, R. No. 1,	7.45
962	Ober's Sea Island Fish Guano,	P. A. Enders, Halifax, R. No. 1,	10.12
	PATAPSCO GUANO CO., BALTIMORE, MD.		
1038	Patapsco B. B. & P. Brand,	Chas. Sbimmel, Ackermanville,	11.86
951	Patapsco Fish Guano,	Chas. S. Brunner, New Bloomfield,	8.75
399	Patapsco General Crop Producer,	Hutchinson & Goodman, Huntingdon.	8.39
533	Patapsco Golden Crop Fertilizer,	Geo. E. Dodson, Rohrsburg,	9.67
531	†Patapsco Special Wheat Compound (Animal Bone Base).	Geo. E. Dodson, Rohrsburg,	10.13
458		John Walters, Mecbanicsburg,	
669		Geo. Schell, Vicksburg,	
	J. D. PERKINS, COATESVILLE, PA.		
646	Perkins' Special Bono Manure,	J. D. Tingley, Chatham,	9.36
	PIEDMONT MT. AIRY GUANO CO., BALTIMORE, MD.		
499	†Insula Guano for all Crops,	H. D. and J. F. Bream, Gettysburg,	6.57
939		A. H. Ulsh, Millerstowu,	
1089	†Levering's Ammoniated Bone,	John G. Dubbs, Bellefonte, R. D.,	6.66
498		H. D. and J. F. Bream, Gettysburg,	
1143		John Bucher, Ephrata,	
1090	Levering's Harvest Queeu,	John G. Dubbs, Bellefoute,	6.42
734	Levering's Standard,	C. I. Saylor, Felton,	3.83
631	Piedmont Farmer's Favorite,	A. C. Wildman, Maud P. O.,	8.23
363	†Piedmont Perfection Guano,	W. H. Hoffman, New Tripoli,	6.53
137		Josiah Holsopple, Hooversville,	
632		A. C. Wildman, Maud P. O.,	
397	Piedmont Special Grain and Grass Compound.	John G. Simpson, Huntingdon,	7.87
1156	Piedmont Special Perfection Guano,	Willis C. Herr, Strasburg,	9.09
	PITTSBURGH PROVISION AND PACKING CO., PITTSBURGH, PA.		
758	†Keystone Fertilizer,	W. H. Dunlap, Canonsburg,	7.41
684		W. B. Brisbine, Ruffsdale, R. No. 3,	
900		H. A. Kyle, Enon Valley, R. D.,	
677	Pure Bone with Potash,	D. W. Bortz, Greensburg,	8.24

†Composite sample.

LIZERS—Continued

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs., at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as Muriate.	Present as Sulphate.	Found.	Guaranteed.	Water Soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
8.13	8.00	.55	8.68	8.50	1.54	.....	1.54	1.00	.49	.62	c.20	.82	.83	18.12	18.00 ..... 17.00
8.08	8.00	.63	8.71	8.50	2.72	.....	2.72	2.00	1.02	1.33	h.23	1.56	1.65	22.62	..... 25.00 22.50
7.23	7.00	.47	7.70	7.50	3.31	.....	3.31	3.00	.48	.66	b.25	.91	.83	19.28	..... 19.00 18.50
8.74	8.00	1.01	9.75	.....	5.23	.....	5.23	5.00	1.24	1.50	h.24	*1.74	2.47	26.83	25.00
9.45	9.00	1.46	10.91	10.00	3.30	.....	3.30	3.00	1.17	1.52	a.16	1.68	1.65	25.65	..... 21.25
8.32	8.00	1.15	9.47	9.00	2.01	.....	2.01	2.00	1.25	1.47	b.21	1.68	1.65	23.10	22.00
9.81	10.00	1.61	11.42	11.00	3.59	.....	3.59	2.00	.66	.84	b.11	.95	.82	22.95	..... 17.50
8.41	8.00	1.47	9.88	9.00	2.89	.....	2.89	2.00	.92	1.13	b.18	1.31	.82	22.40	.... 17.00
8.97	9.00	1.70	10.67	10.00	2.72	.....	2.72	2.00	.46	.61	b.22	.83	.82	20.82	18.00
10.26	8.00	2.08	12.34	9.00	1.26	.....	1.26	1.00	.22	.61	a.20	.81	.82	20.71	.....
9.01	8.00	1.51	10.52	9.00	2.71	.....	2.71	2.00	1.02	1.41	a.26	1.67	1.65	24.42	.....
9.47	8.00	1.47	10.94	9.00	2.19	.....	2.19	2.00	.29	.45	b.11	.56	.41	16.35	18.00
7.34	6.00	1.05	8.39	7.00	2.17	.....	2.17	2.00	1.17	1.48	b.21	1.69	1.65	22.22	21.50
7.26	7.00	.96	8.22	8.00	1.35	.....	1.35	1.00	.49	.64	b.19	.83	.82	17.42	18.00
8.77	9.00	1.97	10.74	10.00	3.34	.....	3.34	3.00	1.21	1.58	a.19	1.77	1.65	25.51	21.75
9.78	9.00	4.35	14.13	14.00	3.70	.....	3.70	2.50	1.19	1.62	b.23	1.85	1.85	28.47	22.75 ..... 25.00
8.07	8.00	1.22	9.29	.....	1.16	.....	1.16	1.00	.71	.90	b.16	1.06	.82	19.14	.....
7.71	7.00	.70	8.41	.....	2.42	.....	2.42	2.00	.24	....	.....	.44	.41	14.55	17.00 17.00
9.05	9.00	1.17	10.22	.....	4.30	.....	4.30	3.00	.28	.47	b.24	*.71	.82	21.50	22.50 20.00 19.00
8.78	8.00	1.16	9.94	.....	2.20	.....	2.20	2.00	.31	.53	b.26	.79	.82	19.69	21.00
9.11	8.00	1.28	10.39	.....	3.71	.....	3.71	3.00	.52	.82	b.32	*1.14	1.65	23.11	20.50
8.20	8.00	.85	9.05	.....	4.87	.....	4.87	4.00	.32	.65	b.35	1.00	.82	22.39	24.00
8.13	8.00	1.30	9.43	.....	5.99	.....	5.99	5.00	.55	1.02	h.53	1.55	1.65	26.17	22.50 23.00 28.00
*8.93	10.00	.98	9.91	.....	3.57	.....	3.57	3.00	.39	.68	b.32	1.00	.82	21.93	21.00
10.40	10.00	1.61	12.01	.....	3.21	.....	3.21	3.00	.85	1.40	a.34	1.74	1.65	26.83	24.50
9.02	9.00	1.94	10.96	11.00	3.15	.....	3.15	1.50	.24	.93	b.61	1.54	1.43	24.61	24.00 22.00 22.50
9.98	7.00	6.00	15.98	14.00	3.76	.....	3.76	3.00	.43	1.39	a.64	*2.03	2.46	30.43	24.00

*Constituent falls below guaranty.

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	FOR POLLOCK FERTILIZER CO., by AM. AG. CHEM. CO.		
219	†Pollock's Owl Brand Guano,	J. H. Kelly, Littlestown,	8.96
64		Frank Oster, Osterburg,	
1023		Irwin Earnest, Wolfsburg, R. D.,	
409	†Pollock's Special Invigorator,	J. M. Lutz, Shireysburg,	9.73
390		J. H. Scott, Petersburg,	
478		J. D. Garman, Shippensburg,	
	THE RAMSBURG FERTILIZER CO., FREDERICK, MD.		
224	Ammoniated Phosphate,	Humbert & Krug, Littlestown,	11.10
476	Excelsior Plant Food,	J. D. Garman, Shippensburg,	10.44
	RASIN MONUMENTAL CO., BALTIMORE, MD.		
179	†Rasin's Best Wheat and Grass Producer,	Samuel B. Miller, Mifflinburg,	12.10
18		Isaac Shirey, McClure,	
831		S. C. Walker & Co., Chadds Ford Junction.	
933	Rasin's Great Ammoniated Crop Compound,	C. E. Kraft, Newport, R. No. 3,	10.14
755	†Rasin's Home Run Guano,	J. B. McClelland, Canonsburg,	11.13
1016		Chas. Yeackle, Patton,	
753	Rasin's Indian Brand for Tobacco,	J. B. McClelland, Canonsburg,	9.33
489	†Rasin's I. X. L. Fertilizer,	N. Guy Snyder, Aspers,	11.41
754		J. B. McClelland, Canousburg,	
653	†Rasin's Royal Fish, Bone and Potash,	Geo. A. Botterf, Freeburg,	9.98
752		J. B. McClelland, Canonsburg,	
887	Rasin's Special Fish and Potash Mixture,	E. A. Slagle, Paxinos,	7.31
538	†Rasin's United Grain Grower,	H. B. Low & Sons, Orangeville,	8.82
1077		John H. Weber, Centre Hall,	
	READING BONE FERTILIZER CO., READING, PA.		
552	†Farmer's Union Fertilizer,	A. H. Yocum, Catawissa,	7.95
5		Agnes and J. M. Sankey, McAlisterville, R. D.	
842		M. C. Gotschall, Schwenksville,	
283	Gilt Edge Potato and Tobacco Grower,	Theoafids Gangawere, Cherryville,	6.92
335	†Reading All Crop Special,	A. H. Kulp, Pottstown,	6.42
623		Daniel Stauffer, Zion Grove,	
6	Reading Harvest Queen,	Agnes and J. M. Sankey, McAlisterville, R. D.	6.64
483	†Reading Special Grain and Grass Producer.	G. C. Myers, Gardners,	7.33
333		A. K. Kulp, Pottstown,	
817		Jacob D. Moyer, Bechtelsville,	
	ROBERT A. REICHARD, ALLENTOWN, PA.		
1000	†Golden Harvest Phosphate,	Monroe Savidge, Hegins, R. No. 1,	6.50
1043		William Mittman, Easton,	
1049	Little Giant Phosphate,	Lovine Lerch, Bethlehem, R. No. 1,	4.28
1002	†Peerless Phosphate,	Monroe Savidge, Hegins, R. No. 1,	6.49
856		Abram Good, Ottsville,	
1105		Morris D. Fritz, Oley, R. No. 3,	
562	Surpass Phosphate,	William Mittman, Easton,	6.66
	THE REINDOLLAR CO., TANEYTOWN, MD.		
223	Economy Fertilizer,	Littlestown Milling Co., Littlestown.	7.78
	F. S. ROYSTER GUANO CO., BALTIMORE, MD.		
905	Royster's Ammoniated Potash Compound,	Lewis Steingrove, Mercer,	5.15
377	†Royster's Fish, Flesh and Fowl,	Thos. Kuntzleman, Tower City,	10.32
257		A. M. Brandt, Campbelltown,	
427		J. M. King, York Spring,	
169	Royster's General Crop Fertilizer,	John H. Strickler, Mifflinburg,	8.10
548	Royster's Good Cheer Brand,	N. C. Creasy, Catawissa,	7.63
258	†Royster's Seeding Down Special Fertilizer.	A. M. Brandt, Campbelltown,	9.85
171		John H. Strickler, Mifflinburg,	
378	†Royster's Wheat, Oats and Barley Fertilizer.	Thos. Kuntzleman, Tower City,	7.49
985		Geo. Krause, Rock,	
1133		L. T. Furlow, Ephrata,	

†Composite sample.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.	Water soluble.	Available.	Inactive Insoluble.	Found.	Guaranteed.		
7.91	7.00	1.21	9.12	8.00	1.68	.....	1.68	1.50	.29	.37	c.14	.51	.41	14.43	15.00 17.50 15.50
8.29	8.00	1.22	9.51	9.00	3.56	.....	3.56	3.00	.62	.87	a.11	.98	.82	21.42	20.00 ..... 17.25
10.39	10.00	2.15	12.54	12.00	2.84	.....	2.84	2.00	.42	.70	b.24	.94	.82	23.11	18.00
9.60	9.00	3.02	12.62	11.00	2.91	.....	2.91	2.00	.52	1.41	a.20	1.61	1.65	25.71	20.00
8.28	8.00	2.17	10.45	9.00	3.51	.....	3.51	3.00	.74	.95	c.34	1.29	1.23	23.19	17.35 ..... 25.00
11.97	12.00	2.22	14.19	13.00	1.74	.....	1.74	1.00	.77	....	.....	.95	.82	23.68	17.50
*9.40	10.00	1.81	11.21	11.00	3.86	.....	3.86	3.00	1.07	1.32	b.33	1.65	1.65	26.07	20.50 22.00
*7.36	8.00	1.24	*8.60	9.00	2.53	.....	*2.53	3.00	1.29	2.04	b.68	2.72	2.47	27.26	22.65
8.95	9.00	1.85	10.80	10.00	3.82	.....	3.82	3.00	.96	1.08	b.13	1.21	.82	23.54	26.00 17.20
*7.41	8.00	2.07	9.48	9.00	3.65	.....	3.65	3.00	.70	1.14	b.50	1.64	1.65	24.48	22.00 19.65
5.97	6.00	1.72	7.69	7.00	3.55	.....	3.55	3.00	.37	.94	b.52	1.46	1.65	21.36	22.00
8.09	8.00	1.82	9.91	9.00	2.98	.....	2.98	2.00	.35	.58	b.33	.91	.82	20.52	17.00 20.00
7.85	8.00	1.27	9.12	9.00	4.08	.....	4.08	4.00	1.09	1.44	a.19	1.63	1.64	24.46	24.00 25.50
7.22	7.00	1.06	8.28	8.00	3.81	.....	3.81	4.00	1.44	1.74	b.24	1.98	1.64	25.06	24.00 .....
6.95	7.00	1.31	8.26	8.00	4.45	.....	4.45	4.00	1.09	1.44	a.21	1.65	1.64	23.91	27.00 22.50
6.69	6.00	.73	7.42	7.00	2.12	.....	2.12	2.00	.68	.98	a.10	1.08	1.02	18.61	19.25
6.86	7.00	1.11	7.97	8.00	3.27	.....	3.27	3.00	.42	.75	b.19	.94	.82	19.36	16.85 22.00 21.00
*7.23	8.00	1.94	*9.17	10.00	6.13	.....	6.13	5.00	.54	1.21	b.58	1.79	1.64	26.82	26.00 22.00
6.99	7.00	1.08	*8.07	8.50	1.50	.....	1.50	1.00	.20	.66	b.31	.87	.82	17.36	17.00
*7.62	8.00	1.17	*8.79	9.50	4.67	.....	4.67	4.00	.29	.63	b.32	.95	.82	21.55	25.00 20.00
*7.49	8.00	1.69	*9.18	10.00	2.78	.....	2.78	2.00	.56	1.50	a.43	1.93	1.64	24.45	20.00 20.00
9.87	8.00	1.58	11.45	.....	3.27	.....	*3.27	4.00	.51	.75	b.26	1.01	.82	22.89	17.00
9.59	9.00	1.28	10.87	9.50	7.92	.....	7.92	7.00	.72	.98	a.14	1.12	.82	27.39	26.00
8.23	8.00	1.94	10.17	8.50	3.75	.....	3.75	3.00	1.13	1.47	b.21	1.68	1.65	25.08	22.00 ..... 22.50
8.92	8.00	1.25	10.17	8.50	4.95	.....	4.95	5.00	.58	.84	a.12	.96	.82	23.17	18.00
8.54	8.00	1.56	10.10	8.50	2.40	.....	2.40	2.00	.67	1.07	a.14	1.21	1.03	21.64	19.30
9.32	9.00	1.35	10.67	9.50	3.30	.....	3.30	3.00	.64	.86	a.08	.94	.82	22.05	..... 17.00 18.00
8.67	8.00	1.50	10.17	8.50	2.20	.....	2.20	2.00	.50	.83	a.15	.98	.82	20.61	17.00 18.00

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	THE SCOTT FERTILIZER CO., ELKTON, MD.		
288	Scott's Grain Special,	Henry Fogel, Hecktown,	7.06
893	†Scott's Standard Phosphate,	W. H. Diehl, Northumberland, R. D.	9.09
1113	†Scott's Standard Phosphate,	Frank B. Gabrial, Earlville,	9.09
289	†Scott's Wheat and Grass Grower,	Henry Fogel, Hecktown,	7.14
801	†Scott's Wheat and Grass Grower,	E. D. Greenwald, Albany,	7.14
	M. L. SHOEMAKER & CO., PHILADELPHIA, PA.		
648	Shoemaker's Swift, Sure Guano for Fall Trade.	J. L. Lewis, Honeybrook,	6.32
1100	Shoemaker's New Jersey Special for Wheat and Clover.	Jas. Melcher, Barto, R. No. 2,	7.70
	F. A. SIMONS BROS., MAUD, PA.		
630	The Farmer's Favorite High Grade Phosphate for Truck and Corn.	F. A. Simons & Bro., Maud P. O.,	10.11
	FOR SOUTHERN FERTILIZING CO., YORK, PA., BY AM. AG. CHEM. CO.		
239	Southern Fert. Co's Ammoniated Dissolved Fertilizer.	J. Emanuel Smith, York,	11.24
	STANDARD GUANO CO., BALTIMORE, MD.		
128	†Farmer's Champion,	Blough & Yoder, Holsopple,	6.34
486	†Farmer's Champion,	G. C. Myers, Gardners,	6.34
126	Great Grain Grower,	Blough & Yoder, Holsopple,	8.72
130	Golden Harvest,	Blough & Yoder, Holsopple,	13.72
131	Ideal Guano,	Blough & Yoder, Holsopple,	12.46
485	Standard Fish and Potash Guano,	G. C. Myers, Gardners,	6.41
	SWIFT & CO., CHICAGO, ILL.		
561	Swift's Pure Blood, Bone and Potash,	A. H. Fetherman, Stroudsburg,	12.39
1152	Swift's Pure Corn, Wheat and Oats Fertilizer.	G. Moyer, Mt. Joy,	11.80
860	Swift's Pure Matchless,	Fisher Bros., Rushland,	10.08
889	Swift's Pure Special Formula,	Reed & Erdman, Paxinos,	8.73
767	Swift's Pure Special Potato Fertilizer,	Athens Milling and Produce Co., Athens.	12.44
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.		
210	†Champion Phosphate,	J. F. Grub, Mifflinburg,	8.50
160	†Champion Phosphate,	C. K. Henrie & Son, Millville,	8.50
307	†Champion Phosphate,	Ed. Shuey, Lickdale,	8.50
1167	Farmer's Choice Phosphate.	E. D. Leman, Ronks,	7.15
305	†Improved Super Phosphate,	Ed. Shuey, Lickdale, R. D.,	10.29
162	†Improved Super Phosphate,	C. R. Henrie & Son, Millville,	10.29
500	†Improved Super Phosphate,	L. H. Knisely, Red Lion,	10.29
554	†Superior Super Phosphate,	C. D. Garrison, Danville, R. D. 4,	10.16
1042	†Superior Super Phosphate,	Geo. A. Hayden, Kesslerville,	10.16
	JAS. THOMAS, WILLIAMSPORT, PA.		
772	Thomas' Potato and Truck Manure,	Paul R. English, Granville Summit,	11.10
	TRENTON BONE FERTILIZER CO., TRENTON, N. J.		
825	Grain Manure,	L. A. Howells, Morrisville,	8.19
	JACOB TRINLEY & SONS, LINFIELD, PA.		
628	Favorite Phosphate,	Moury Latshaw Hdw. Co., Spring City.	10.22
813	Trinley's Two-Eight-Five,	C. B. Moyer, Sassamansville,	9.84
	F. W. TUNNELL & CO., PHILADELPHIA, PA.		
826	Ammoniated Phosphate and Potash,	H. A. Mendenhall, Toughkenamon,	8.96
323	Potato and Grain Manure,	John B. Satterthwaite, Woodburn,	10.18

†Composite sample.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.	Water soluble.	Available.	Inactive insoluble.	Found.	Guaranteed.		
8.00	8.00	.96	8.96	.....	4.15	.....	4.15	3.00	.22	.35	c.21	.56	.41	17.00	17.00
8.72	8.00	1.46	10.18	.....	4.08	.....	4.08	3.00	.32	.58	b.32	.90	.82	22.06	..... / 20.00
8.48	8.00	1.11	9.59	.....	3.44	.....	3.44	2.00	.20	.31	c.20	.51	.41	16.51	..... / 18.00
10.33	8.00	2.36	12.69	11.00	5.57	.....	5.57	5.00	1.39	1.74	a.12	1.86	1.65	29.85	25.00
9.59	8.00	2.29	11.88	10.00	2.88	.....	2.88	2.00	.58	1.06	a.18	1.24	1.03	23.78	21.00
6.38	6.00	.54	*6.92	8.00	3.97	.....	3.97	3.64	.95	2.45	a.65	*3.10	3.30	29.07	30 00
10.75	10.00	.98	11.73	11.00	3.34	.....	3.34	2.50	1.24	1.46	a.14	1.60	1.65	26.36	24.00
8.04	8.00	1.24	9.28	8.25	1.63	.....	*1.63	2.00	.27	.41	a.09	.50	.41	14.52	16.00 / 13.80
8.56	8.00	1.70	10.26	8.50	3.43	.....	*3.43	4.00	.39	.66	b.18	.84	.82	21.13	19.00
*8.68	9.00	2.09	10.77	.....	3.76	.....	*3.76	4.00	1.11	1.44	b.24	1.68	1.64	25.62	22.00
9.18	8.00	1.86	11.04	9.00	3.70	.....	*3.70	4.00	1.13	1.41	b.20	1.61	1.64	25.52	22.00
9.64	9.00	1.68	11.32	9.50	2.81	.....	2.81	3.00	.40	.64	b.17	.81	.82	21.37	17.10
13.44	.....	9.55	22.99	22.00	4.23	.....	4.23	3.00	.85	1.47	a.32	*1.79	2.26	34.99	35.00
11.16	11.00	1.02	12.18	.....	3.55	.....	3.55	3.00	.65	.82	b.15	.97	.82	24.04	18.00
8.45	8.00	1.11	9.56	.....	3.47	.....	3.47	3.00	1.25	1.52	a.17	1.69	1.65	24.61	23.15
7.73	7.00	.97	8.70	.....	2.94	.....	2.94	3.00	.64	.85	b.17	1.02	1.00	20.16	20.00
8.27	8.00	.66	8.93	.....	9.22	.....	*9.22	10.00	.96	1.20	b.32	1.58	1.65	29.31	32.00
*7.32	8.00	2.20	9.52	9.00	4.48	.....	4.48	4.00	.80	1.29	b.39	1.68	1.64	24.98	20.75 / 24.00 / 23.00
*7.35	9.50	2.99	10.34	10.00	2.31	.....	2.31	2.00	.76	1.37	b.43	1.80	1.60	23.76	24.00
8.88	9.00	.98	9.86	10.00	2.58	.....	2.58	2.00	.47	.62	c.25	.87	.82	20.31	18.50 / 18.00 / 18.00
*6.51	7.00	1.65	8.16	8.00	1.56	.....	1.56	1.00	.52	.73	b.25	.98	.82	17.88	17.25 / 14.00
7.93	8.00	.88	8.81	9.00	5.36	.....	5.36	5.00	1.12	1.45	b.25	1.70	1.65	25.81	26.50
10.05	8.00	1.30	11.35	9.00	3.27	.....	3.27	3.00	.75	1.10	b.33	*1.43	1.64	25.00	25.00
10.67	10.00	1.03	11.70	11.00	6.87	.....	6.87	7.00	1.39	1.58	a.12	1.70	1.65	30.09	30.00
9.51	8.00	1.08	10.59	9.00	4.57	.....	*4.57	5.00	.58	1.29	a.45	1.74	1.65	26.97	26.00
7.74	7.00	.99	8.73	8.00	2.04	.....	2.04	2.00	.35	.47	b.13	.60	.21	17.49	20.50
7.72	7.00	1.00	8.80	8.00	4.97	.....	4.97	4.00	.57	1.04	b.34	*1.38	1.04	23.92	27.00

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	TUSCARORA FERTILIZER CO., BALTIMORE, MD.		
692	Big Four, 4,	L. B. Longanecker, Greensboro,	7.70
693	†Crop Grower,	L. B. Longanecker, Greensboro,	8.50
688	†Crop Grower,	A. M. Frederick, Jr., Fairchance,	8.50
787	†Crop Grower,	R. G. Eckley, Westfield,	8.50
	UNION CHEMICAL WORKS, NORTH WALES, PA.		
337	†Farmer's Choice,	Solomon Good, Spring City,	11.82
1137	†Farmer's Choice,	J. B. Johns, Ephrata, R. No. 5,	11.82
849	†Farmer's Special,	H. K. Mohr, Quakertown,	12.29
1138	†Farmer's Special,	J. B. Johns, Ephrata,	12.29
851	General Crop Grower,	H. K. Mohr, Quakertown,	11.41
	U. S. FERTILIZER CO., BALTIMORE, MD.		
895	Farm Bell Grain Grower,	Ernest Artley, Pennsdale,	10.58
	VIRGINIA CAROLINA CHEM. CO., RICHMOND, VA.		
186	V. C. C. Co's Fish, Bone and Potash,	Geo. Kunkle, Winfield,	10.88
185	V. C. C. Co's Owl Brand Guano,	Geo. Kunkle, Winfield,	9.98
20	V. C. C. Co's Special for Wheat and Grass.	Isaac Shirey, McClure,	9.44
187	†V. C. C. Co's Wheat and Clover,	Geo. Kunkle, Winfield,	11.12
234	†V. C. C. Co's Wheat and Clover,	J. R. Weaver, & Bro., New Oxford,	11.12
	JOS. C. WALKER & SONS, GAP, PA.		
1170	Pride of Pequea,	E. E. and W. J. L. Walker, Kinzer,	7.92
	FOR W. E. WHANN CO., PHILA., PA., BY AM. AG. CHEM. CO.		
597	†Whann's Chester Valley Available Ammoniated Superphosphate.	John S. Mertz, Schofer,	9.68
279	†Whann's Chester Valley Available Ammoniated Superphosphate.	Oscar N. Snyder, Laurys,	9.68
853	†Whann's Chester Valley Available Ammoniated Superphosphate.	N. T. Sassaman, Ottsville,	9.68
741	Whann's Chester Valley No. 2 Ammoniated Superphosphate.	A. L. Miller, York, R. No. 6,	8.80
854	Whann's Chester Valley Special Ammoniated Superphosphate.	N. T. Sassaman, Ottsville,	8.52
	ROBERT A. WOOLDRIDGE CO., BALTIMORE, MD.		
595	Ammoniated Phosphate,	Daniel Berger, Kutztown,	10.06
592	Wooldridge's Champion Stag Phosphate,	Chester Christ, Kutztown,	9.32
206	†Wooldridge's Double Quick Phosphate,	Miller & Ocker, Beaver Springs,	7.40
664	†Wooldridge's Double Quick Phosphate,	E. W. Dershorn, White Deer,	7.40
909	Wooldridge's Farmer's Favorite Cereal Compound.	Rush Haller, Newville, R. No. 4,	9.23
594	†Wooldridge's Special for Spring and Fall Crops.	Chester Christ, Kutztown,	8.98
665	†Wooldridge's Special for Spring and Fall Crops.	E. W. Dershorn, White Deer,	8.98
	ROBERT A. WOOLDRIDGE CO., TRADING AS THE WOOLDRIDGE FERT'G CO., BALTIMORE, MD.		
262	†Clover Leaf Crop Grower,	S. B. Jackson, Carlisle,	6.56
163	†Clover Leaf Crop Grower,	Grant Johnson, Millville,	6.56
1129	†Clover Leaf Crop Grower,	E. O. Hecker, Lincoln,	6.56
1130	Cyclone,	E. O. Hecker, Lincoln,	6.01
1128	Faultless,	E. O. Hecker, Lincoln,	8.97
260	†Old Hickory Phosphate,	S. B. Jackson, Carlisle,	7.98
164	†Old Hickory Phosphate,	Grant Johnson, Millville,	7.98
1127	†Old Hickory Phosphate,	E. O. Hecker, Lincoln,	7.98
	YORK CHEMICAL WORKS, YORK, PA.		
426	Dauphin Brand,	J. B. Speara, Dillsburg,	8.32
467	†Dempwolf's Ammoniated R. B.,	H. T. Sadler, Carlisle,	9.52
173	†Dempwolf's Ammoniated R. B.,	Peter Renner & Son, Mifflinburg,	9.52
837	†Dempwolf's Ammoniated R. B.,	Thos. Haines & Co., Aldham,	9.52
222	Dempwolf's Crop Grower,	A. P. Lippy, Littlestown,	9.42

†Composite sample.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.	Water soluble.	Available.	Inactive insoluble.	Found.	Guaranteed.		
7.25	7.00	.93	8.18	7.50	3.95	.....	3.95	4.00	1.01	1.38	b.29	1.67	1.65	23.56	25.00
8.09	8.00	.77	8.86	8.50	2.32	.....	2.32	2.00	.57	.73	b.21	.94	.82	19.57	21.80 23.00 20.00
8.04	8.00	.98	9.02	.....	4.25	.....	4.25	4.00	1.02	1.40	b.34	1.74	1.64	25.12	24.00 22.00
7.94	8.00	.70	8.64	.....	4.23	.....	4.23	4.00	.48	.69	b.25	.94	.82	21.26	21.00 19.00
8.09	8.00	.83	8.92	.....	2.31	.....	2.31	2.00	.23	.53	b.45	.98	.82	19.82	20.00
9.79	8.00	.47	10.26	9.00	1.96	.....	1.96	2.00	.32	.53	b.22	.75	.41	19.90	18.00
8.07	8.00	2.59	10.66	9.00	3.25	.....	3.25	3.00	.43	1.03	b.63	1.66	1.65	24.50	20.00
*6.95	8.00	1.04	*7.99	9.00	6.36	.....	6.36	5.00	1.75	1.85	b.15	2.00	1.65	27.21	22.00
6.95	7.00	1.31	8.26	8.00	2.73	.....	2.73	2.00	.29	.41	b.17	.58	.41	17.49	15.00
9.30	9.00	1.43	10.73	10.00	3.08	.....	3.08	2.00	.82	....	.....	1.00	.82	22.12	..... 18.00
10.05	10.00	1.19	11.24	.....	3.39	.....	3.39	3.00	1.38	2.20	a.45	2.65	2.47	30.57	25.00
7.29	7.00	1.16	8.45	8.00	3.22	.....	3.22	3.00	.75	.91	b.13	1.04	1.00	20.26	19.00 20.00 22.00
7.31	7.00	1.17	8.48	8.00	3.08	.....	3.08	3.00	.79	1.05	b.24	1.29	1.25	21.36	21.00
8.54	7.50	1.47	10.01	8.50	2.28	.....	2.28	2.00	.64	.86	b.18	1.04	.82	20.82	20.00
8.45	8.00	.38	8.83	9.00	2.36	.....	2.36	1.00	.82	.99	a.11	1.10	.82	21.20	16.90
10.26	9.00	.45	10.71	10.00	2.43	.....	2.43	2.00	.57	.78	b.18	.96	.82	21.75	18.50
9.77	9.00	1.07	10.84	10.00	3.51	.....	3.51	3.00	1.80	2.16	a.15	2.31	2.26	28.75	23.00 .....
7.59	7.00	.80	8.39	8.00	2.42	.....	2.42	2.00	.36	....	.....	.51	.41	14.74	14.50
8.63	8.00	.96	9.59	9.00	3.95	.....	3.95	3.00	.87	1.03	b.19	1.22	1.23	22.94	20.25 .....
8.10	8.00	.71	8.81	8.50	2.64	.....	2.64	2.00	.23	.33	b.21	.54	.42	15.54	18.00 16.50 17.50
8.13	8.00	.64	8.77	8.50	3.28	.....	3.28	3.00	1.76	2.23	a.30	2.53	2.47	27.78	25.50
8.14	8.00	.67	8.81	8.50	2.30	.....	2.30	2.00	1.23	1.52	b.23	1.75	1.64	23.22	22.50
7.92	8.00	.98	8.90	8.50	2.55	.....	2.55	2.00	.66	.86	c.25	1.11	1.03	20.41	19.75 19.00 19.50
10.56	10.00	.38	10.94	10.50	2.69	.....	2.69	2.00	.87	1.16	b.24	1.40	1.23	24.33	22.00
*9.56	10.00	1.04	*10.60	11.00	4.34	.....	4.31	4.00	.83	1.24	b.33	1.57	1.65	25.89	..... 25.75 28.00
8.32	8.00	.32	8.64	8.50	1.53	.....	1.53	1.00	.19	.45	b.36	.81	.82	18.20	18.00

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=2/5 or more.
*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
625	†Dempwolf's Spring Special,	W. H. Smith, Ringtown,	6.63
436		Peter S. Lehman, Chambersburg,	
1103		Joel Y. Moyer, Bechtelsville, R. No. 2.	
394	†Dempwolf's Standard,	J. H. Edminston, Petersburg, R. D.,	7.62
125		W. F. Gnogey, Berlin,	
729		Anderson Bros., New Park,	
715	Dempwolf's Half and Half,	Norman G. Miller, Cessna, R. D.,	10.22
247	†Dempwolf's Plow Brand,	V. D. Urick, Myerstown,	8.45
833		Thos. Haines & Co., Malvern,	
611	†Harvest King,	John Scott, Berwick, R. No. 2,	6.51
922		Hershey Store Co., Hershey,	

†Composite sample.

LIZERS—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Nitrogen in 100 Pounds.					Computed commercial value of 2,000 lbs. at Dept. rating.	Selling price of 2,000 lbs. at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.	Water soluble.	Available.	Inactive insoluble.	Found.	Guaranteed.		
*6.78	7.00	.92	*7.70	8.00	10.07	.....	10.07	10.00	1.02	1.27	b.27	1.54	1.65	28.48	..... 24.75 24.00
8.09	8.00	1.06	9.15	9.00	5.53	.....	5.53	5.00	1.03	1.25	b.31	1.56	1.65	25.57	..... 23.50 24.00
7.81	7.00	.26	8.07	7.50	1.87	.....	1.87	1.00	.11	.36	b.37	.73	.82	17.67	.....
*7.65	8.00	1.87	*8.52	9.00	2.00	.....	2.00	2.00	1.10	1.37	b.27	1.64	1.65	22.05	20.75 24.00
7.93	8.00	.57	*8.50	9.50	5.39	.....	5.39	5.00	1.16	1.37	b.25	1.62	1.65	25.26	22.50 22.00

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.

ROCK AND POTASH

Furnishing Phosphoric

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	AMERICAN AGRICULTURAL CHEMICAL CO., NEW YORK.		
881	†Big Crop Phosphate,	Mrs. J. H. Kase, Riverside,	7.85
942		S. M. Shuler & Son, Liverpool,	
774	Bradley's Magic Phosphate,	Wysox Hay Co., Wysox,	11.33
529	†Canton Chemical Soluble Phosphate and Potash.	Graham Bros., Darlington,	9.55
197		W. B. Winey, Middleburg,	
587		King Bros., Uniontown,	
144	†Detrick's Soluble Phosphate & Potash,	Newton Gonder, Boswell,	9.12
413		P. L. Homm, Spring Grove R. No. 1,	
568	East India Great Crop,	Theodore Gerhart, Gilbert,	13.50
563	East India Ideal Mixture,	Theodore Gerhart, Gilbert,	9.65
651	†Lazaretto High Grade Phosphate and Potash.	H. W. Aurund, Middleburg,	8.72
429		P. E. Comfort, Bermudian,	
924		B. F. Horting, Newport,	
39	†Maryland Bono Superphosphate,	J. F. Young, Marion,	8.55
892		J. A. Gass, Sunbury, R. No. 2,	
295	†Maryland Linden Super Phosphate,	Geo. Hocker, Union Deposit,	8.49
916		Paxton Flour & Feed Co., Bowmansdale.	
468	†Moro Phillips Wheat Special,	Nickles & Steward, Shippensburg,	8.85
244		Levi Donkle, Myerstown R. No. 5,	
1117	†Packer's Union Banner Wheat Grower,	Elias F. Hornberger, Ephrata R. No. 3.	8.40
78		A. J. Norris, Cove Forge,	
402		Wm. J. Brown, Mill Creek,	
310	Reese's Grass & Grain,	A. G. Houtz, Myerstown R. No. 1,	10.63
795	†Reese's Wheat Special,	Samuel Hummel, Monterey,	10.05
330		Wm. C. Ball, Media,	
874		J. F. Goodling, Loganville,	
591	†Sharpless & Carpenter's Soluble Phosphate & Potash.	Chas. L. Grim, Kutztown,	9.61
315		Millhouse Bros., Mendenhall,	
1081		John H. Beck, Nittany,	
25	†Susquehanna Alkaline Phosphate,	Greencastle Elevator Co., Greencastle,	9.00
598		Wm. Bennicoff, Krumsville,	
389	†Susquehanna Alkaline Special,	J. C. Meirley, Alexandria,	8.50
1030		E. L. Griest, Cessna, R. D.,	
277	†Wheeler's Wheat & Clover Fertilizer,	L. J. Kuntz, Walnutport,	9.76
87		J. B. Breth, Mahaffey,	
527		B. W. Russell, Enon Valley, R. D. 1	
	AMERICAN FERTILIZING CO., BALTIMORE, MD.		
1135	American Premium Phosphate & Potash,	Quarryville Farmers Asso., Inc., Quarryville.	8.10
1169	American Victor Phosphate & Potash,	Paradise Farmers Asso., Inc., Vintage.	11.10
2	Double Extra Phosphate & Potash,	J. H. Neideigh, State College, R. D.	12.57
	ARMOUR FERTILIZER WORKS, BALTIMORE, MD.		
997	Armour's Phosphate & Potash,	Curtis Updegrave, Sacramento,	8.63
	BAUGH & SONS CO., PHILADELPHIA, PA.		
1068	†Baugh's Phosphate & Potash.	J. A. Harkness, Reedsville,	8.30
235		E. M. Neely, New Oxford,	
1075		R. D. Foreman, Centre Hall,	
703	†Baugh's 12-5 Phosphate & Potash,	A. N. Witter, Waterfall,	7.50
708		C. F. Fendrick, Mercersburg,	
	BOWKER FERTILIZER CO., BOSTON, MASS.		
175	†Bowker's Super Phosphate with Potash,	Geo. Englehart, Mifflinburg,	8.17
430		Geo. E. Detrich, York Springs,	
49	Bowker's Ten and Eight,	H. F. Gump & Son, Everett,	7.52

†Composite sample.

FERTILIZERS.

Acid and Potash.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.		Insoluble.	Total.		Present as muriate.	Present as sulphate.	Total.			
Found.	Guaranteed.		Found.	Guaranteed.			Found.	Guaranteed.		
8.26	8.00	.77	9.03	9.00	5.08	.....	5.08	5.00	15.55	15.00 15.50
12.03	12.00	.89	12.92	13.00	3.97	.....	*3.97	5.00	17.18	18.00
10.07	10.00	.51	*10.58	11.00	2.69	.....	2.69	2.00	14.44	14.60 14.00 18.00
10.27	10.00	.34	*10.61	11.00	2.79	.....	2.79	2.00	14.60	14.50 15.00
8.10	8.00	1.05	9.15	9.00	5.18	.....	5.18	5.00	15.61	15.00
10.71	10.00	1.00	11.71	11.00	2.17	.....	2.17	2.00	14.53	14.00
12.57	12.00	.58	13.15	13.00	2.23	.....	2.23	2.00	15.81	14.25 14.00 13.70
9.93	10.00	.84	*10.77	11.00	2.94	.....	2.94	2.00	14.68	12.00 15.00
11.57	11.00	.57	12.14	12.00	2.88	.....	2.88	2.00	15.74	..... 16.00
9.97	10.00	.60	*10.57	11.00	2.52	.....	2.52	2.00	14.18	14.00 15.50 13.25
10.02	10.00	.64	*10.66	11.00	2.41	.....	2.41	2.00	14.14	15.00 13.00
10.61	10.00	.32	10.93	11.00	2.22	.....	2.22	2.00	14.28	15.00
10.13	10.00	.66	*10.79	11.00	2.28	.....	2.28	2.00	14.16	14.00 17.00 14.00
9.92	10.00	.98	10.90	11.00	2.55	.....	2.55	2.00	14.34	..... 14.50 10.81
10.43	10.00	.70	11.13	11.00	2.45	.....	2.45	2.00	14.53	..... 12.50 13.50
12.22	12.00	.77	12.99	13.00	2.54	.....	2.54	2.00	15.94	15.30 16.00 18.00
9.97	10.00	.96	10.93	11.00	2.51	.....	2.51	2.00	14.32	18.00 15.50
*11.16	12.00	1.82	12.98	13.00	2.53	.....	2.53	2.00	15.55	13.35
*13.20	14.00	1.89	15.09	15.00	2.52	.....	2.52	2.00	17.04	14.50
11.97	12.00	1.89	13.86	13.00	5.49	.....	5.49	5.00	18.97	.....
12.95	12.00	.40	13.35	12.50	2.32	.....	2.32	2.00	16.08	14.00
13.26	13.00	1.43	14.69	.....	2.74	.....	2.74	2.00	17.11	16.00 15.50 17.00
12.64	12.00	1.68	14.32	.....	4.99	.....	4.99	5.00	18.91	18.50 .....
10.37	10.00	.59	10.96	11.00	2.55	.....	2.55	2.00	14.52	..... 15.00
10.00	10.00	.45	*10.45	11.00	8.80	.....	8.80	8.00	20.22	20.00

*Constituent falls below guaranty.

Sample number.	Manufaeturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	CENTRAL CHEMICAL CO., THOMAS FERTZ'S WORKS, HAGERSTOWN, MD.		
470	C. C. C. Commonwealth Phosphate and Potash.	Nickles & Steward, Shippensburg, ..	8.86
656	C. C. C. Eastern Special, ...	John Wingert, Lewisburg, ...	8.82
490	C. C. C. Eclipse Mixture, ...	Biglerville Warehouse Co., Biglerville.	9.84
	THE COE MORTIMER CO., NEW YORK.		
272	†E. Frank Coe's Famous Prize Brand Grain & Grass Fertilizer.	Ervin Messinger & Co., Tatamy,..	8.51
268		Ervin Messinger & Co., Tatamy,..	
573		E. A. Berthalomew, Saylorsburg, ..	
	COLUMBIA GUANO CO., BALTIMORE, MD.		
555	Columbia Blue Ribbon Compound, ...	Thomas Kunkle, Easton, ...	8.56
545	†Columbia Grass & Grain Grower, ...	M. P. Whienight, Bloomsburg, ...	8.29
768		Henry & Bressler, Athens, ...	
98	Columbia Potash Compound, ...	J. H. Long, Flemington, ...	11.89
	CONSUMERS CHEMICAL CO., NEW YORK CITY.		
275	Consumers' All Crop Compound, ...	J. J. Shoemaker, Walnutport, ...	7.62
	HENRY COPE & CO., LINCOLN UNIVERSITY, PA.		
635	High Grade Soluble Phosphoric Acid and Potash.	Lyburn Whitaker, Oxford.	9.05
	EASTERN CHEMICAL CO., NEW YORK.		
27	†Eastern Golden Harvest, ...	Diehl, Omwake & Diehl, Chambersburg, ...	7.92
704		Jno. A. Diehl & Co., Richmond, ..	
33	Eastern Potash Jewel, ...	Jno. A. Diehl & Co., Chambersburg,	9.20
28	Eastern Royal Compound, ...	Diehl, Omwake & Diehl, Chambersburg.	9.94
	EUREKA CHEMICAL CO., BALTIMORE,		
691	Eureka Crop Grower, ...	Wm. Davis, Greenboro, ...	6.12
	FARMERS' FERTILIZER WORKS, ELIZABETHTOWN.		
938	†Big Bononza, ...	I. B. Sechrist, Millerstown, ...	6.58
1139		C. B. Gochenour, Lititz, ...	
	W. S. FARMER & CO., BALTIMORE, MD.		
229	W. S. Farmer & Co.'s B. & P. Phosphate,	J .H. Dutterer, New Oxford, ...	8.10
	W. S. HASTINGS & SON, ATGLEN, PA.		
1180	Star Brand, ...	E. B. Fritz & Sons, Quarryville, ..	7.26
	GRIFFITH & BOYD CO., BALTIMORE, MD.		
1122	Special XX Potash Manure, ...	Adam E. Good, Ephrata, R. D., ...	12.78
	S. M. HESS & BRO., INC., PHILADELPHIA, PA.		
254	†Emperor Phosphate, ...	S. D. Snyder, Myerstown, R. No. 5,	11.52
663		W. F. Hafer, New Columbia, ...	
	JARECKI CHEMICAL CO., SANDUSKY, O.		
760	Square Brand Phosphate & Potash, ...	J. H. Vorhees, Ten Mile, ...	10.40
	KEYSTONE BONE FERTILIZER CO., PHILADELPHIA, PA.		
577	†Keystone 10-2, ...	Fogel & Eberts, Freemansburg, ...	7.67
601		Alfred Baver, Kutztown, ...	
	LANCASTER BONE FERTILIZER CO., LANCASTER, PA.		
83	Diamond, ...	Rhule & Aucker, Williamsburg, ...	8.34
84	†Harvest King, ...	Rhule & Aucker, Williamsburg, ...	8.61
10		John W. Gamou, Richfield, ...	
869		C. W. Warner, Larne, ...	
147	Special Grange Mixture, ...	John A. Cooper, Washingtonville,..	7.90

†Composite sample.

FERTILIZER—Continued.

Phosphoric Acide in 100 Pounds.					Potash in 100 Pounds.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.		Insoluble.	Total.		Present as muriate.	Present as sulphate.	Total.			
Found.	Guaranteed.		Found.	Guaranteed.			Found.	Guaranteed.		
10.04	10.00	.32	10.36	.....	2.54	.....	2.54	2.00	14.19	14.00
10.40	10.00	.45	10.85	.....	3.77	.....	*3.77	4.00	15.66	14.25
12.92	12.00	.48	13.40	.....	3.37	.....	3.37	3.00	17.08	16.00
10.07	10.00	1.27	11.34	11.00	2.43	.....	2.43	2.00	14.48	..... / ..... / 14.50
13.09	12.00	1.20	14.29	12.50	2.25	.....	2.25	2.00	16.42	14.00
10.55	10.00	.96	11.51	10.50	2.85	.....	2.85	2.00	15.08	13.50 / 16.50
12.59	12.00	.54	13.13	12.50	5.15	.....	5.15	5.00	18.62	20.00
9.70	9.00	2.10	11.80	10.00	3.89	.....	3.89	3.00	15.88	13.50
9.97	9.00	.61	10.58	10.00	4.35	.....	4.35	4.00	15.99	16.00
8.33	8.00	.38	8.71	.....	5.32	.....	5.32	5.00	15.63	13.25 / 13.00
11.94	12.00	.55	12.49	.....	5.69	.....	5.69	5.00	18.68	15.50
9.83	10.00	.42	10.25	.....	2.10	.....	2.10	2.00	13.65	12.25
6.88	6.00	1.30	8.18	6.50	2.22	.....	*2.22	3.00	11.95	17.00
8.88	8.00	.68	9.56	.....	5.77	.....	5.77	5.00	16.57	15.00 / 16.00
10.04	10.00	.48	*10.52	11.00	2.27	.....	2.27	2.00	13.86	12.50
12.05	10.00	.48	12.53	.....	5.78	.....	5.78	5.00	18.82	15.50
14.78	14.00	.71	15.49	15.00	1.91	.....	1.91	2.00	17.13	17.00
10.12	10.00	.83	10.95	11.00	2.03	.....	2.03	1.00	13.95	..... / 14.00
*9.68	10.00	1.62	11.30	11.00	1.91	.....	1.91	2.00	13.78	19.00
10.20	10.00	1.08	11.28	11.00	2.41	.....	2.41	2.00	14.44	14.50 / 15.00
*7.71	8.00	.34	*8.05	9.00	2.28	.....	2.28	2.00	12.28	15.00
8.26	8.00	.55	8.81	9.00	3.96	.....	*3.96	5.00	14.34	17.00 / 16.00 / 13.00
*9.44	10.00	.54	*9.98	11.00	8.36	.....	8.36	8.00	19.42	19.50

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	LANCASTER CHEMICAL CO., LANCASTER, PA.		
200	No. 16. Phosphoric Acid & Potash Special,	J. A. Walters, Middleburg,	8.66
194	No. 13. Special Potash Manure,	J. A. Walters, Middlehurg,	8.30
	LEBANON FERTILIZER WORKS, LEBANON, PA.		
804	Levan's Special Mixture Fertilizer,	Adam Gerhart, Rohrersburg,	7.55
	LISTERS' AGRICULTURAL CHEMICAL WORKS, NEWARK, N. J.		
57	†Lister's Dissolved Phosphate & Potash,	Everett Hdw. Co., Everett,	9.05
17		H. G. Frock, McClure,	
70		Jacob Bowser, St. Clairsville,	
	FREDERICK LUDLAM CO., BALTIMORE, MD.		
238	Ludlam's Cecrops Fertilizer Phos. & Potash.	Emanuel Hoffman, Dove, R. No. 1,	8.72
53	†Ludlam's Cecrops Fertilizer Wheat Special.	H. F. Gump & Son, Everett,	7.23
885		J. A. Kimbel, Elyshurg,	
	D. B. MARTIN CO., PHILADELPHIA, PA.		
823	†Martin's Potash & Sol. Phosphate No. 2,	N. B. Keim & Son, Langhorne,	10.22
1144		Lanc. Co. Farmers' Assn., Manheim, R. D.	
	MILLER FERTILIZER CO., BALTIMORE, MD.		
228	†Clinch Phosphate,	J. Emery Maul, Iron Ore,	9.17
204		Jos. M. Hornherger, Middlehurg,	
293		Chas. Oiler, Carlisle, R. No. 3,	
	NASSAU FERTILIZER CO., NEW YORK.		
401	†Grass & Grain Fertilizer,	A. J. Bowser, Mill Creek,	8.36
178		Shaeffer & Snyder, Mifflinhurg,	
463		W. S. Thumma, Mechanicshurg,	
777	Ten & Eight Special,	J. N. Graves, Jermyn,	9.71
	G. OBER & SONS CO., BALTIMORE, MD.		
153	†Ober's Dissolved Phosphate & Potash,	John A. Cooper, Washingtonville,	8.17
495		D. Blocher & Co., Gettysburg,	
960	Superior Phosphate & Potash,	P. A. Enders, Halifax, R. No. 1,	9.57
	PATAPSCO GUANO CO., BALTIMORE, MD.		
532	†Baltimore Soluble Phosphate,	Geo. E. Dodson, Rohrsburg,	9.14
231		J. W. Hersh, New Oxford,	
914		Jno. I. Miller, Camp Hill,	
771	Patapsco High Grade Phosphate & Potash,	Granville Merc. Co., Granville,	11.21
	PIEDMONT MT. AIRY GUANO CO., BALTIMORE, MD.		
1174	Piedmont Special Potash Mixture,	H. E. Mullen, Christiana,	7.33
398	Piedmont Special Phosphate & Potash,	John G. Simpson, Huntingdon,	7.32
	PITTSBURGH PROVISION & PACKING CO., PITTSBURGH, PA.		
757	Phosphate & Potash,	W. H. Dunlap, Canonsburg,	4.22
	FOR POLLOCK FERTZR. CO., BALTIMORE, MD., BY AM. AG. CHEM. CO.		
218	†Soluble Phosphate,	J. H. Kelly, Littlestown,	9.10
63		Frank Oster, Osterhurg,	
941		E. C. Mengle, Liverpool,	
1024	Victor Brand Phosphate,	Irvin Earnest, Wolfsburg,	5.70
	RAMSBURG FERTILIZER CO., FREDERICK, MD.		
475	Special Rock & Potash,	J. D. Garman, Shippensburg,	10.11
	RASIN MONUMENTAL CO., BALTIMORE, MD.		
155	†Rasin's Great Alkaline Grain Grower,	H. A. Snyder, Strawberry Ridge,	10.54
393		J. C. Bumgardner, Cottage,	
827	Rasin's Half & Half Mixture,	W. H. Walker & Co., Kennett Square.	8.15

†Composite sample.

FERTILIZER—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.		Insoluble.	Total.		Present as muriate.	Present as sulphate.	Total.			
Found.	Guaranteed.		Found.	Guaranteed.			Found.	Guaranteed.		
*9.18	10.00	.35	*9.53	11.00	4.46	.....	4.46	3.00	15.43	17.00
*9.54	10.00	.63	*10.17	11.00	2.02	.....	2.02	2.00	13.41	15.50
7.75.	7.00	.85	8.60	8.00	5.77	.....	5.77	5.00	15.81	.....
10.54	10.00	.51	11.05	11.00	2.57	.....	2.57	2.00	14.62	15.00 13.00 14.00
10.33	10.00	.48	10.81	11.00	2.73	.....	2.73	2.00	14.66	14.00
8.86	8.00	.51	9.37	9.00	2.42	.....	2.42	2.00	13.26	15.00 15.50
11.38	10.00	1.15	12.53	.....	2.22	.....	2.22	2.00	15.14	17.00 12.00
10.67	10.00	.42	11.09	10.50	2.57	.....	2.57	2.00	14.68	13.50 ....
10.38	10.00	.56	10.94	11.00	2.66	.....	2.66	2.00	14.64	16.00 ....
10.27	10.00	1.36	11.63	11.00	8.37	.....	8.37	8.00	20.32	21.00
10.48	10.00	1.06	11.54	11.00	2.11	.....	2.11	2.00	14.36	15.00 14.00
12.92	12.00	1.58	14.50	13.00	3.01	.....	3.01	2.00	17.14	.....
11.32	11.00	1.17	12.49	12.00	2.58	.....	2.58	2.00	15.49	13.60 18.00 .....
*10.57	11.00	1.49	12.06	12.00	4.73	.....	*4.73	5.00	17.10	15.00
*9.55	10.00	.97	10.52	.....	4.91	.....	4.91	5.00	16.33	16.00
*12.27	13.00	.70	12.97	.....	3.90	.....	3.90	2.00	17.22	17.00
11.13	9.00	1.05	12.18	10.00	2.66	.....	2.66	2.00	15.36	25.00
11.13	10.00	.73	11.86	11.00	2.59	.....	2.59	2.00	15.18	13.50 15.50 14.30
10.67	9.00	.45	11.12	10.00	1.23	.....	1.23	1.00	13.44	13.50
*9.54	10.00	1.74	11.28	.....	5.78	.....	5.78	5.00	17.48	15.00
14.16	14.00	.78	14.94	15.00	2.53	.....	2.53	2.00	17.32	16.00 16.50
6.93	6.00	.66	7.59	7.00	3.06	.....	3.06	3.00	12.54	13.00

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
248	†Rasin's Little Giant Phosphate & Potash,	S. K. Donkle, Myerstown R. No. 5,	
19		Isaac Shirey, McClure,	8.37
808		L. A. Geiger, Joanna,	
539	†Rasin's Special Phosphate & Potash,	H. B. Law & Sons, Orangeville,	9.64
934		C. E. Kraft, Newport, R. No. 3,	
936	†Rasin's Victoria Phosphate & Potash,	C. E. Kraft, Newport, R. No. 3,	9.27
1017		Chas. Yaukle, Patton,	
935	Rasin's Wheat Potash Mixture,	C. E. Kraft, Newport, R. No. 3,	8.51
	READING BONE FERTILIZER CO., READING, PA.		
159	†Alkaline Phosphate & Potash,	H. W. Shaeffer, Rohrsburg,	
7		A. & J. M. Sankey, McAllisterville, R. D.	6.81
816		Jacob D. Moyer, Bechtelsville, R. No. 1.	
620	High Grade Potash Mixture,	Otis Smith, Conyngham,	7.90
1135	Reading Twelve & Five,	Henry Lutz, Denver,	8.15
245	Soluble Phosphate & Potash,	Emanuel Merkey, Bethel,	7.74
	ROBERT A. REICHARD, ALLENTOWN, PA.		
1044	Farmer's Favorite,	Wm. Mittman, Easton,	5.85
1045	Superior Phosphate,	Wm. Mittman, Easton,	6.54
	F. S. ROYSTER GUANO CO., BALTIMORE, MD.		
12	†Royster's Blue Ribbon Compound,	A. A. Weader, Beaver Springs,	8.71
1075		F. H. Clemson, Stormstown,	
682	†Royster's High Grade Potash Mixture,	J. H. Snyder, Arona,	9.84
789		R. G. Ackley, Westfield R. D.,	
172	Royster's XXX Alkaline Phosphate,	John H. Strickler, Mifflinburg,	8.47
	SCHAAL SHELDON FERTILIZER CO., BUFFALO, N. Y.		
514	Dissolved Phosphate with Extra Potash,	Brooklyn Milling Co., Spartansburg,	8.30
	FOR S. M. SHULER & SON, LIVERPOOL, PA., BY AM. AG. CHEM. CO.		
880	Shuler's Phosphate & Potash,	Mrs. J. H. Kase, Riversade,	
52		H. F. Gump & Son, Everett,	7.17
925		B. F. Horting, Newport,	
	SOUTHERN FERTILIZING CO., YORK, PA., BY AM. AG. CHEM. CO.		
400	Southern Fertilizing Co.'s Ox Brand Phosphate & Potash.	(No name),	7.56
1029		E. L. Griest, Cessna, R. D.,	
	STANDARD GUANO CO., BALTIMORE, MD.		
132	Standard Alkaline Mixture,	Blough & Yoder, Holsopple,	5.68
	SWIFT & CO., BALTIMORE, MD.		
790	Swift's Pure Diamond F. Fertilizer,	Saul McAvoy, Middlebury Center,	6.60
1052		Kemmer & Son, Lehighton,	
937	Swift's Pure Diamond H. Fertilizer,	Kipp & Moore, Millertown,	7.98
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.		
432	Alkaline Fertilizer,	J. W. King, York Springs,	
157		Frank E. Martz, Washingtonville,	9.25
701		C. E. Starr, Three Springs,	
	TUSCARORA FERTILIZER CO., BALTIMORE, MD.		
689	Phosphate & Potash,	A. M. Frederick, Jr., Fairchance,	7.70
1093		H. T. McDowell, Howard,	
	UNION CHEMICAL WORKS, NORTH WALES, PA.		
850	Super Phosphate & Potash No. 1,	H. K. Mohr, Quakertown,	11.66

†Composite sample.

FERTILIZER—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.		Insoluble.	Total.		Present as muriate.	Present as sulphate.	Total.			
Found.	Guaranteed.		Found.	Guaranteed.			Found.	Guaranteed.		
*7.34	8.00	.90	*8.24	9.00	2.50	.....	2.50	2.00	12.42	14.00 12.50 12.00
10.05	10.00	1.74	11.79	11.00	5.85	.....	5.85	5.00	17.89	15.50 14.50
*11.72	12.00	1.62	13.34	13.00	2.43	.....	2.43	2.00	15.79	13.50 16.20
*7.54	8.00	1.19	*8.73	9.00	5.28	.....	5.28	5.00	15.36	13.40
8.12	8.00	.65	*8.77	9.00	2.80	.....	*2.80	3.00	13.16	15.00 15.70 17.00
*9.74	10.00	.83	*10.57	11.00	2.89	.....	2.89	3.00	14.48	20.00
12.44	12.00	.66	13.10	13.00	3.21	.....	*3.21	5.00	16.68	18.00
10.43	10.00	1.08	11.51	11.00	2.05	.....	2.05	2.00	14.28	.....
8.22	8.00	.74	8.96	9.00	5.13	.....	5.13	5.00	15.52	14.00
9.98	10.00	.83	10.81	11.00	8.62	.....	8.62	8.00	20.14	18.00
11.97	12.00	1.06	13.03	12.50	3.35	.....	3.35	2.00	16.64	14.50 .....
10.19	10.00	.99	11.18	10.50	10.80	.....	10.80	10.00	22.47	25.00 24.00
11.04	10.00	1.17	12.21	10.50	4.76	.....	*4.76	5.00	17.34	15.00
10.09	10.00	.87	10.96	11.00	4.21	.....	4.21	4.00	16.02	18.00
8.56	8.00	.47	9.03	9.00	3.06	.....	3.06	2.00	13.67	14.00 15.00 11.25
8.89	8.00	.61	9.50	9.00	2.47	.....	2.47	2.00	13.38	..... 14.00
9.90	10.00	1.74	11.64	.....	1.94	.....	1.94	2.00	14.04	14.00
8.11	8.00	.39	8.50	.....	3.27	.....	3.27	2.00	13.50	16.00 17.50
13.07	12.00	.55	13.62	.....	2.22	.....	2.22	2.00	16.11	15.00
9.95	10.00	.85	*10.80	11.00	2.31	.....	2.31	2.00	14.08	14.50 14.00 13.00
10.78	10.00	.57	11.35	10.50	1.95	.....	1.95	2.00	14.25	19.00 14.50
9.81	10.00	.99	10.80	.....	1.90	.....	1.90	2.00	13.64	16.00

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 ponnds.
	VIRGINIA CAROLINA CHEMICAL CO., RICHMOND, VA.		
65	†V. C. C. Co.'s Standard Phosphate & Potash.	Joseph Knisley, Alum Bank, ...	10.82
233		J. R. Weaver & Bro., New Oxford,	
	ROBT. A. WOOLDRIDGE CO., BALTIMORE, MD.		
120	Wooldridge's No. 1 Phosphate & Potash,..	Harry V. Smith, Turbotville, ...	7.58
593	†Wooldridge's Special Alkaline, ...	Chester Christ, Kutztown, ...	
205		Miller & Ocker, Beaver Springs, ..	9.84
1061		Thos. K. Beaver, Academia, ...	
	YORK CHEMICAL WORKS, YORK, PA.		
910	†Codorus Brand, ...	J. M. Peiper, Newville, ...	
198		Steinminger Bros., Middleburg, ...	5.71
1033		Stewart Claycomb, Weyant, ...	
62	†Dempwolf's Red Cross, ...	Albert Dively, Bedford No. 1, ...	
31		C. F. Fendrick, Mercersburg, ...	6.75
79		S. F. Hetrick, Williamsburg, ...	

†Composite sample.

FERTILIZER—Continued.

Phosphoric Acid in 100 Pounds.					Potash in 100 Pounds.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.		Insoluble.	Total.		Present as muriate.	Present as sulphate.	Total.			
Found.	Guaranteed.		Found.	Guaranteed.			Found.	Guaranteed.		
*9.27	10.00	1.46	*10.73	11.00	2.39	.....	2.39	2.00	13.93	13.00 13.50
6.66	6.00	.42	7.08	7.00	3.39	.....	3.39	3.00	12.63	12.60
12.84	12.00	.44	13.28	13.00	2.54	.....	2.54	2.00	16.27	15.00 14.50 .....
8.24	7.00	.40	8.64	7.50	4.24	.....	4.24	3.00	14.56	13.50 14.00 14.95
10.00	10.00	.45	10.45	10.50	4.95	.....	4.95	5.00	16.52	15.50 15.00 17.00

*Constituent falls below guaranty.

DISSOLVED BONE

Furnishing Phosphoric

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	BOWKER'S FERTILIZER CO., NEW YORK.	
883 1114	†Bowker's Ammoniated O. I. O. Phosphate.	J. A. Kimbel, Elysburg, ... Hamburg Supply House, Hamburg, ...
	READING BONE FERTILIZER CO., READING, PA.	
484	Dissolved Animal Matter, ...	G. C. Myers, Gardners, ...

†Composite sample.

FERTILIZERS.

Acid and Nitrogen.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.					Nitrogen in 100 Pounds.					Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
	Available.		Insoluble.	Total		Water soluble.	Available.	Inactive—Insoluble.	Total.			
	Found.	Guaranteed.		Found.	Guaranteed.				Found.	Guaranteed.		
9.54	11.00	10.00	.85	11.85	11.00	.67	.81	b.12	.93	.62	19.16	{ 16.00 { 16.00
4.58	11.13	10.00	.92	12.05	11.00	.51	.69	b.17	.86	.82	18.88	16.15

a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.

ACIDULATED

Furnishing

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	AMERICAN AGRICULTURAL CHEMICAL CO., NEW YORK.	
85	†Canton Chemical, Baker's Dissolved S. C. Phosphate.	H. L. Orr, Tyrone,
847		Mark Hiltheitel, Green Lane,
407	†14% Acid Phosphate,	S. A. Norris, Shirleysburg,
121		J. H. Way, Coleman,
509		T. R. Bolton, Cochranton,
142	†Detrick's Dissolved S. C. Phosphate,	Newton Gouder, Boswell,
415		P. L. Homm, Spring Greve, R. No. 1,
463	Moro Phillips Soluble Phosphate,	Nickles & Stewart, Shippenshurg,
328	†Reese's Dissolved Phosphate of Lime,	Wm. C. Ball, Media,
797		Samuel Hummel, Monterey,
316	Susquehanna Superior Rock Phosphate,	Milhous Bros., Mendenhall,
	ARMOUR FERTILIZER WORKS, INC., BALTIMORE, MD.	
55	Cereal Phosphate,	Jno. S. Hershberger, Everett,
	BAUGH & SONS CO., PHILADELPHIA, PA.	
387	†Baugh's High Grade Acid Phosphate,	Frank Grazier, Warriorsmark,
29		S. F. Peckhorn, Williamson,
645		E. A. and J. L. Pennock, Chatham,
	BERG COMPANY, PHILADELPHIA, PA.	
864	Acid Phosphate, 14%,	Edw. F. Braeken, Paoli,
	BOWKER'S FERTILIZER CO., BOSTON AND NEW YORK.	
50	Bowker's Apex Phosphate,	H. F. Gump & Son, Everett,
542	†Bowker's Soluble Phosphate,	M. P. Whitenight, Bloomsburg, R. No. 5,
1011		Marion Centre Hdwe. Co., Marion Centre,
	COLUMBIA GUANO CO., BALTIMORE, MD.	
97	†Columbia 14% Acid Phosphate,	J. H. Long, Flemington,
553		Thos. Kunkle, Easton,
	JOSIAH COPE & CO., BALTIMORE, MD.	
583	Cope's Acidulated Phosphate,	Jones Eavenson, Christiana,
	EASTERN CHEMICAL CO., NEW YORK.	
36	Eastern Dissolved Phosphate,	Jno. A. Diehl & Co., Chambershurg,
	EUREKA CHEMICAL CO., BALTIMORE, MD.	
697	†Eureka Soluble Phosphate,	J. W. Belle, Jefferson,
679		C. S. Funk, New Stanton,
896		D. J. Schoch, Montoursville, R. No. 2,
	HUBBARD FERTILIZER CO., BALTIMORE, MD.	
76	†Huhhard's 14% Phosphate,	L. R. Over, Curry,
61		Francis Baker, Everett,
1020		L. R. Over, Currysville,
	LANCASTER BONE FERTILIZER CO., LANCASTER, PA.	
81	Farmer's Economy,	Rhule & Aueker, Williamsburg,
	LISTER'S AGRICULTURAL CHEMICAL CO., NEWARK, N. J.	
388	†Lister's Buyer's Choice Acid Phosphate,	Ben Everhart, Franklinville,
59		Everett Hdwe. Co., Everett,
579		H. E. Mullen, Christiana,
709	Lister's High Grade Acid Phosphate,	Ora Lake, Leidig,
	D. B. MARTIN CO., PHILADELPHIA, PA.	
270	†Martin's Acid Phosphate,	Edwin Houck, Bangor,
1145		Lane. Co. Farmer's Ass'n, Manheim, R. D.,

†Composite sample.

ROCK PHOSPHATE.

Phosphoric Acid.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.					Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
	Available.		Insoluble.	Total.			
	Found.	Guaranteed.		Found.	Guaranteed.		
7.75	14.83	14.00	.69	15.52	15.00	14.13	13.50 17.00
7.71	*13.80	14.00	1.34	15.14	15.00	13.63	17.50 14.00 15.00
7.86	14.60	14.00	.47	15.07	15.00	13.88	14.50 12.00
5.50	15.11	14.00	.32	15.43	15.00	14.20	12.50
9.11	14.13	14.00	.60	*14.73	15.00	13.60	14.00 13.00
9.35	14.55	14.00	.56	15.11	15.00	13.88	13.00
6.34	10.58	10.00	.26	10.84	10.50	10.92	12.00
9.34	16.70	14.00	.38	17.08	.....	15.37	12.50 12.00 13.00
6.72	*13.71	14.00	1.45	15.16	.....	13.59	15.00
7.03	14.06	9.00	.41	14.47	10.00	13.46	12.00
6.13	15.21	14.00	.28	15.49	15.00	14.25	13.50 14.00
5.92	14.61	14.00	2.17	16.78	14.50	14.50	15.00 12.50
9.15	14.07	14.00	.38	*14.45	15.00	13.46	12.00
8.64	*12.96	14.00	.84	13.80	.....	12.84	11.00
7.57	13.87	14.00	1.30	15.17	14.50	13.64	13.00 16.00 14.00
7.97	15.07	14.00	1.25	16.32	15.00	14.49	12.50 14.00 12.50
9.40	14.92	14.00	.83	15.75	15.00	14.24	14.00
6.98	14.73	14.00	.83	15.56	15.00	14.11	12.25 12.50 12.75
7.56	16.41	16.00	.61	17.02	17.00	15.22	16.00
10.95	14.98	14.00	.38	15.36	.....	14.13	.... 11.25

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	MILLER FERTILIZER CO., BALTIMORE, MD.	
639	†Acid Phosphate,	M. F. Harkins, Hickory Hill,
292		Chas. Oilir, Carlisle, R. No. 3,
799		Seigfred & Schwoyer, Kepton,
	NASSAU FERTILIZER CO., NEW YORK.	
571	†Soluble Phosphate,	J. J. Yetter, Stroudsburg,
1085		W. E. Bair, Milheim, R. D.,
	G. OBER & SONS CO., BALTIMORE, MD.	
151	Ober's Dissolved Phosphate,	Jno. A. Cooper, Washingtonville,
	PATAPSCO GUANO CO., BALTIMORE, MD.	
230	Battle Ax Phosphate,	J. N. Hersh, New Oxford,
713	Patapsco High Grade Acid Phosphate,	Albert Dively, Bedford, R. No. 1,
232	†Patapsco Pure Dissolved S. C. Phosphate,	J. N. Hersh, New Oxford,
1037		Chas. Shimmel, Ackermansville,
	POLLOCK FERTILIZER CO., BY AM. AG. CHEM. CO., BALTIMORE, MD.	
477	†Dissolved S. C. Phosphate,	J. D. Garman, Shippensburg,
408		J. M. Lutz, Shirleysburg,
719		D. W. Dibert, Bedford, R. No. 1,
	RAMSBURG FERTILIZER CO., FREDERICK, MD.	
474	Super Phosphate,	J. D. Garman, Shippensburg,
	RASIN MONUMENTAL CO., BALTIMORE, MD.	
800	†Rasin's Acid Phosphate,	Seigfred & Schwoyer, Kempton,
1		C. B. McCormick, State College, R. F. D.,
1015		Chas. Yaeckle, Patton,
156	Rasin's 16% Acid Phosphate,	H. A. Snyder, Strawberry Ridge,
	SCOTT FERTILIZER CO., ELKTON, MD.	
250	†Scott's Tip Top Soluble Phosphate,	Elias S. Brubacher, Richland,
642		Mackey & Yerkes, Oxford,
	M. L. SHOEMAKER & CO., PHILADELPHIA, PA.	
649	Dissolved S. C. Rock,	J. K. Lewis, Honeybrook,
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.	
1041	†S. C. Phosphate,	Geo. C. Haydn, Kesslerville,
161		C. R. Henrie & Son, Millville,
700		C. E. Starr, Three Springs,
	VIRGINIA CAROLINA CHEM. CO., RICHMOND, VA.	
66	V. C. C. Co's Guarauteed 14% Acid Phos-†phate.	Jos. Knisely, Alum Bank,
	ROBT. A. WOOLDRIDGE CO., BALTIMORE, MD.	
1107	Wooldridge's High Grade Acid Phosphate,	Sol DeTurk, Greisnerville,
	WOOLDRIDGE FERTILIZER CO., BALTIMORE, MD.	
261	Curacao Guano,	S. B. Jackson, Carlisle,
	YORK CHEMICAL WORKS, YORK, PA.	
80	†Dempwolf's Dissolved Phosphate,	S. F. Hetrick, Williamsburg,
45		E. H. Horst, Chambersburg,
102		Geo. F. Schrack, Booneville,

†Composite sample.

PHOSPHATE—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.					Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
	Available.		Insoluble.	Total.			
	Found.	Guaranteed.		Found.	Guaranteed.		
9.24	14.41	14.00	.85	15.26	14.50	13.88	16.00 ..... 14.00
7.38	15.04	14.00	.71	15.75	15.00	14.29	....
10.57	15.07	14.00	1.25	16.32	15.00	14.49	13.50
5.97	13.96	12.00	.70	14.66	13.00	13.50	14.00
8.63	17.44	16.00	.20	17.64	17.00	15.84	13.50
5.50	14.79	14.00	1.08	15.87	15.00	14.24	15.00 14.00
7.92	14.40	14.00	.93	15.33	15.00	13.92	12.50 14.50 13.00
9.74	17.12	16.00	.50	17.62	.....	15.69	12.50
8.56	14.52	14.00	.22	*14.74	15.00	13.75	14.00 13.00 13.00
10.74	16.71	16.00	.75	17.46	17.00	15.50	14.00
12.34	16.41	14.00	.89	17.30	.....	15.33	14.00 13.50
10.95	13.94	14.00	1.39	15.33	15.00	13.75	15.00
9.69	14.73	14.00	.70	15.43	14.50	14.07	12.00 13.00 12.00
10.03	14.38	14.00	.13	15.11	15.00	14.02	12.50
5.78	*14.23	16.00	.78	*15.01	17.00	13.71	14.25
6.91	7.79	‡	14.04	21.83	21.00	13.88	18.60
7.89	14.36	14.00	.52	14.88	14.50	13.75	14.00 12.75 14.00

‡Reverted guaranteed 9%.
*Constituent falls below guaranty.

GROUND BONE

Furnishing Phosphoric

Sample number.	Manufaeturer and Brand.	From Whom Sample Was Taken.
	AMERICAN AGRICULTURAL CHEMICAL CO., NEW YORK.	
332	†High Grade Ground Bone,	Wm. C. Ball, Media,
139		Newton Gouder, Boswell,
518		Beible Bros., Kearsarge,
	ARMOUR FERTILIZER WORKS, INC., BALTIMORE, MD.	
395	†Raw Bone Meal,	D. Ross Gregory, Petersburg, R. D.,
366		John Schoner, McKeansburg,
515		J. S. Chisholm, McKean,
	BAUGH & SONS CO., PHILADELPHIA, PA.	
673	†Baugh's Fine Ground Bone,	B. F. Gayman, Thompsontown,
90		Wm. Biller, Patton,
832		Edw. Brinton & Sons, West Chester,
	CAMBRIA FERTILIZER CO., JOHNSTOWN, PA.	
1006	Pure Fine Ground Bone Dust,	G. B. Plunket, Dean,
	JAS. G. DOWNWARD CO., COATESVILLE, PA.	
821	Pure Ground Bone,	Isaac Tomlinson, Huntingdon Valley,
	HAFLEIGH & CO., PHILADELPHIA, PA.	
830	Pure Raw Bone Meal,	S. C. Walker & Co., Chadd's Ford Junction,
	LISTER'S AGRICULTURAL CHEM. WORKS, NEWARK, N. J.	
71	†Lister's Bone Meal,	Jacob Bowser, St. Clairsville,
60		Everett Hardware Co., Everett,
521		R. S. Carter, Harbor Creek,
	NITRATE AGENCY CO., NEW YORK.	
1148	Ground Bone,	Samuel Wenger, Bareville, R. No. 1,
	PATAPSCO GUANO CO., BALTIMORE, MD.	
496	Patapsco Pure Ground Bone,	E. C. Thomas, Gettysburg,
	PITTSBURGH PROVISION AND PACKING CO., PITTSBURGH, PA.	
764	No. 1 Pure Raw Bone Meal,	Geo. B. Sprawls, Claysville,
	POLLOCK FERTILIZER CO., NEW YORK.	
497	Pure Raw Bone,	E. S. Kelly, Gettysburg,
	RASIN MONUMENTAL CO., BALTIMORE, MD.	
828	†Pure Raw Bone,	W. H. Walker & Co., Kennett Square,
1088		McCalmont & Co., Bellefonte,
	READING BONE FERTILIZER CO., READING, PA.	
334	†Pure Raw Bone Meal,	A. K. Kulp, Pottstown.
551		A. H. Yoeum, Catawissa,
	ROBERT A. REICHARD, ALLENTOWN, PA.	
1054	Steamed Bone Meal,	Kemmer & Son, Lehighton,
	SCOTT FERTILIZER CO., ELKTON, MD.	
643	Scott's Pure Ground Raw Bone,	Maekay & Yerkes, Oxford,
	STANDARD GUANO CO., BALTIMORE, MD.	
127	Bone Meal,	Blough & Yoder, Holsopple,

†Composite sample.

FERTILIZERS.

Acid and Nitrogen.

Moisture in 100 pounds.	Mechanical Analysis.		Chemical Analysis.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of delivery.
			Phosphoric Acid.		Nitrogen.			
	Diameter less than 1-50 inch. "Fine."	Diameter greater than 1-50 inch. "Coarse."	Found.	Guaranteed.	Found.	Guaranteed.		
4.23	52	48	21.65	20.59	3.51	3.29	32.26	34.00 32.00 31.00
6.62	18	82	23.07	21.50	3.56	3.70	31.12	..... 29.00 32.00
4.71	64	36	18.80	16.49	3.13	2.47	29.68	32.00 30.00 32.00
4.29	62	38	27.26	20.00	*2.47	3.00	33.15	32.00
5.20	63	37	23.14	20.06	3.08	2.85	32.70	34.00
8.10	49	51	*24.46	25.84	3.83	3.75	35.53	33.00
4.75	67	33	26.95	22.88	3.14	2.67	36.06	30.00 34.00 35.00
5.23	46	54	*22.02	22.88	2.68	2.46	29.14	32.00
7.39	52	48	21.07	20.59	3.90	3.70	33.49	33.00
5.50	47	53	22.54	22.00	3.99	3.70	34.59	23.50
6.17	63	37	22.27	21.51	3.82	3.70	34.75	31.00
6.37	53	47	*17.35	20.60	4.03	3.70	31.44	30.50 50.50
4.19	56	44	25.90	18.00	2.88	2.46	33.43	33.00 30.00
3.69	56	44	25.34	22.00	3.14	2.88	36.40	33.00
7.15	28	72	32.18	21.50	3.92	3.30	39.22	35.00
5.41	40	60	25.34	22.90	3.44	2.47	33.94	29.00

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	SWIFT & COMPANY, BALTIMORE, MD.	
331	†Swift's Pure Bone Meal,	Wm. C. Ball, Media,
519		W. P. Rouser & Son, North East,
834	Swift's Raw Bone Meal,	Thos. Haines & Co., Malvern,
	I. P. THOMAS & SONS CO., PHILADELPHIA, PA.	
904	Pure Ground Bone,	W. J. Moyer, Greenville,
	JACOB TRINLEY & SONS, LINFIELD, PA.	
627	Pure Raw Bone Meal,	Mowrey Latshaw Co., Spring City,
	UNION CHEMICAL WORKS, NORTH WALES, PA.	
336	Raw Bone Meal,	Solomon Good, Spring City,
	EMIL WAHL, PHILADELPHIA, PA.	
314	Emil Wahl's Warranted Pure Philadelphia Button Bone Meal.	S. K. Chambers & Bro., West Grove,
	YORK CHEMICAL WORKS, YORK, PA.	
865	†Dempwolf's Pure Ground Bone,	Edw. F. Bracken, Paoli,
1072		Elmer Musser, State College, R. D.,

†Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Mechanical Analysis.		Chemical Anaylsis.				Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of delivery.
			Phosphoric Acid.		Nitrogen.			
	Diameter less than 1-50 inch. "Fine."	Diameter greater than 1-50 inch. "Coarse."	Found.	Guaranteed.	Found.	Guaranteed.		
3.86	75	25	24.21	23.00	2.68	2.47	32.77	32.00 30.00
5.33	55	45	23.20	23.00	3.79	3.70	31.02	32.00
5.95	72	28	*22.73	23.00	2.70	2.46	31.45	27.00
6.95	46	54	21.36	20.00	4.55	3.70	36.96	34.00
6.58	61	39	23.36	21.00	*3.48	3.69	34.27	32.00
6 63	82	18	25.25	24.59	*2.55	3.30	33.51	32.00
5.34	63	37	*20.03	23.00	3.74	2.47	32.89	34.00 30.00

*Constituent falls below guaranty.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.	Moisture in 100 pounds.
	AMERICAN AGRICULTURAL CHEMICAL CO., NEW YORK.		
343	Muriate of Potash,	Enos Barkey, Evens City,	3.53
	CENTRAL PHOSPHATE CO., MT. PLEASANT, TENN.		
	Tennessee Phosphate,	Thos. Haines & Co., Malvern,	2.01
	COE MORTIMER CO., NEW YORK.		
445	High Grade Sulphate of Potash,	I. W. Scott Co., Pittsburgh,	1.85
	FARMER'S FERTILIZER WORKS OF AMERICA, SHARPSBURG, PA.		
1188	‡Potash, Phosphoric Acid and Lime,	R. J. Wilson, Library,	†.75
	FEDERAL CHEMICAL CO., COLUMBIA, TENN.		
442	Daybreak Tennessee Brown Phosphate Rock.	I. W. Scott Co., Pittsburgh,	1.08
	NITRATE AGENCIES CO., NEW YORK.		
3	Basic Slag (H. A. Brand), Thomas Phosphate Powder.	Ira J. Sberk, Oakland Mills,	0.25
969	Ground Tankage,	J. W. Kunkle, Barnesville,	4.71

‡The manufacturer also guarantees 30% available lime in this brand.

FERTILIZERS.

Phosphoric Acid in 100 Lbs.					Potash in 100 Lbs.				Nitrogen in 100 Lbs.					Computed commercial value of 2,000 pounds at Department rating.	Selling price of 2,000 pounds at point of selection.
Available.			Total.				Total.					Total.			
Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Present as muriate.	Present as sulphate.	Found.	Guaranteed.	Water soluble.	Available.	Inactive—Insoluble.	Found.	Guaranteed.		
.....	.....	.....	.....	.....	52.11	.....	52.11	49.00	.....	.....	.....	....	....	43.68	60.00
.....	.....	.....	28.73	25.00	.....	.....	.....	.....	.....	.....	.....	....	....	.....	9.50
.....	.....	.....	.....	.....	.....	51.36	51.26	48.00	.....	.....	.....	....	....	58.35	57.00
†*11.72	12.00	.....	12.22	.....	.....	.....	*.67	2.00	.....	.....	.....	....	....	.....	.....
.....	.....	**	32.15	.....	.....	.....	.....	.....	.....	.....	.....	....	....	.....	28.00
†14.42	§	.....	16.87	17.00	.....	.....	.....	.....	.....	.....	.....	....	....	.....	.....
.....	.....	.....	10.79	6.86	.....	.....	.....	.....	2.63	5.23	a1.08	6.31	5.75	37.98	32.50

**Guaranteed 29.75%. Insoluble P_2O_5.
§14%. Citrate soluble, guaranteed.
a, b, c. Characters indicating the proportion of insoluble nitrogen that is inactive: a=2/5 or less; b=2/5 to 3/5; c=3/5 or more.
*Constituent falls below guaranty.
†Wagner method.

INSTRUCTIONS TO AGENTS ENGAGED IN COLLECTING SAMPLES OF FERTILIZERS FOR THE DEPARTMENT OF AGRICULTURE OF PENNSYLVANIA.

Fertilizer manufacturers sometimes allege that there have been errors made on the part of our sampling agents in selecting samples for analysis. It is due to manufacturers, purchasers and this Department, that the greatest care shall be exercised on the part of all connected with this work, to insure that the samples are fairly taken, are properly laheled and sealed, and are sent to the chemist in exactly the condition in which the goods are found. The following instructions have therefore heen prepared for the guidance of agents to which strict adherence is required.

1.—No sample shall he taken from the manufacturer's warehouse.

2.—No agent shall draw in the same season more than two samples of any one hrand of fertilizer, unless for some special reason, which he shall state in his report; if a second sample be drawn the agent must satisfy himself that it is not a part of the same shipment from which the first sample was taken.

3.—Each agent shall make report from time to time in duplicate, giving the number of each sample taken in consecutive order, the name and address of the manufacturer, the name and address of the agent selling the goods from which the sample is taken, an EXACT copy of the name of the hrand of fertilizer and the selling price per ton of 2,000 lhs. at point of selection. He shall then subscribe his name to each report and send one copy to the official chemist as hereinafter provided, and the other to the Secretary of Agriculture, at Harrishurg, Pa.

4.—Agents shall keep full memoranda of all the samples, stating the number of packages from which the sample is taken, together with such additional notes of information as may he of service for future reference in case the accuracy of their work is called in question.

5.—The sample for analysis must he taken from at least four sacks, the sampling tuhe to he run its full length diagonally from top to bottom through the center of the sack, turned two or three times to fill it, and the contents emptied upon the oil cloth provided for mixing. Mix the material drawn from the four sacks by lifting the corners of the cloth alternately so as to roll the suhstance hack and forth. Level the well-mixed material with the spatula to a thickness of not more than one inch. By the aid of the spatula divide the flattened heap into quarters, of which two, diagonally opposite shall be scraped from the cloth, and the remaining two remixed by the rolling process and again leveled. Through the heap thus prepared make two channels, crossing at right angles by use of the sampling channel, which must be pushed close to the cloth under the fertilizer and lifted so as to remove a vertical section of the heap. At ONCE, empty the materials thus taken through the funnel into the sampling bottle and screw down tight the bottle cap, after making sure that its cork or fibre cap-lining is in place.

6.—The sample heing properly secured, the agent shall write his name and his record numher for the sample upon both the hottle and the carton labels. The bottle shall then he inserted in the carton and the latter IMMEDIATELY closed by drawing down the cover and inserting it in its place and putting a rubber hand around the entire carton, the long way so as to hold the cover in place until the agent's seal can he applied.

7.—Place the cartons in the containers and when their number is complete, put on the cover; then place the tape around the container, once each way, and KNOT. Take your sealing wax and seal the tape to the container, hy placing the sealing wax directly over the knot so as to secure the knot; then impress your seal and place in shipping case, enclose with them the agent's corresponding duplicate report, lock the case and ship it to the chemist.

8.—Agents must not use pencil in writing upon labels or in Record Book: Provided, however, that indelihle pencil may he used if it makes a clearly legible impression and is not used when the paper, by reason of rain or other cause, is so moist as to cause the writing to blur.

9.—Agents, when practicahle, will keep the Secretary of Agriculture informed in advance, of the points to be visited, so as to be promptly reached by telegraph or mail, if necessary.

SPECIAL NOTICE.

This Department expects to continue the publication, early in each year, of a list of fertilizer manufacturers who have complied with the law of this State by filing with the Department the required analysis and paying the legal license fee, together with the trade names of the several brands for which such fees have been paid, so that dealers may be able to avoid making themselves liable to prosecution.

The policy of the Department for some time in the past was to bring prosecution against manufacturers, where it was possible to reach them, rather than against local dealers who are found selling unregistered goods, or goods that in other respects fail to meet the requirements of the law.

It was found, however, that in pursuing this method exclusively, we were sometimes subject to long delays before cases brought, came to trial, and as our witnesses are agents and chemists of the Department who are liable to change, it sometimes happened that before the cases were listed for trial they had gone to some other field and their presence in Court could not be secured.

For this reason prosecutions, when necessary, are now being instituted either against the manufacturers or persons selling goods that do not comply with the law as we may elect.

N. B. CRITCHFIELD,
Secretary of Agriculture.